COLONY OF MAURITIUS

Annual Report

OF THE

Department of Agriculture

for the year 1956

[PRICE: R 1.25]

PRINTED AND PUBLISHED BY
J. ELIEL FELIX, I.S.O., GOVERNMENT PRINTER,
PORT LOUIS, MAURITIUS
NOVEMBER 1958

No. 23 of 1958

5-FEB 1959

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DEPARTMENT OF AGRICULTURE,
REDUIT.
8th OCTOBER, 1957

Sir,

I have the honour to submit the annual report of the Department of Agriculture for the year 1956.

2. The format of this report has been altered from that of previous years in accordance with instructions conveyed by the Colonial Secretary's letters Nos. 1651/10/6 and 1651/10/9 of the 15th and 18th April, 1957 respectively.

I have the honour to be,
Sir,
Your obedient servant,

M. N. LUCIE-SMITH,
Director of Agriculture.

The Honourable the Minister for Agriculture and Lands,
Ministry of Agriculture and Lands,
Port Louis.

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Annual Report of the Department of Agriculture for the year 1956

I. General Review

The policy of the Department of Agriculture remains as stated in the last Annual Report with the exception that recommendations as to future land settlement policy have now received the approval of Executive Council. The main points of policy and progress in their implementation are summarized below.

2. A primary objective is the establishment and maintenance of an adequate cadre of trained technical staff within the Department. A programme of study leave has been planned to enable local officers to be trained overseas with a view to filling existing and future vacancies for senior staff. During the year various officers were undergoing courses abroad in agricultural chemistry, plant pathology, agricultural engineering, entomology, animal husbandry and poultry husbandry while arrangements have been concluded for other officers to commence training in tea agronomy and agricultural engineering next year. The immediate effect of this programme of training serving officers is to accentuate the present shortage of staff but it is expected that, as from 1958, the position will rapidly improve as officers return to post after qualifying. Resultant vacancies for junior technical officers are being provided for by the grant of three annual scholarships to enable holders of the Higher School Certificate to follow the Diploma course at the Mauritius College of Agriculture preparatory to appointment in the Department.

3. Progress has been made in the establishment of an Agricultural Extension Service, deployed throughout the Colony to serve the small planter. The complete staff has now been recruited, trained and posted to the various districts. During the next three years, as part of the Capital Expenditure Programme, district centres are to be established. These will include quarters and offices for both the agricultural and the animal husbandry extension officer of the district, a meeting room for planters, and a store for agricultural equipment and supplies for the assistance of planters. In each district centre will be incorporated a demonstration plot.

4. The development of experimental stations in each of the major climatic zones for the investigation of crops, livestock and methods suited to these areas has been practically completed. Equipped and developed stations are now established at Curepipe in the wet highlands, at Réduit in the intermediate zone, at Richelieu in the drier west and at Pamplemousses in the northern plain. Capital development of the Tea Experiment Station, Wooton is also virtually complete.

5. Although no longer responsible for sugar research, the Department has continued to assist in the maintenance of maximum production and efficiency in the sugar industry through co-operation with the Sugar Research Institute, extension work amongst small planters, administration of the Central Board and provision of plan inspection and quarantine facilities.

6. After initial delays concerned with the procurement of land and equipment, an encouraging start has been made with the project to develop the tea industry on a scale sufficient to provide a significant contribution to both exports and employment. The establishment of smallholdings, to be planted by the Department and leased when of bearing age, has progressed ahead of schedule; but development on private lands and on Crown Land leaseholds by planters has been delayed, in the one case by late arrival of land-clearing equipment and in the other by difficulty in obtaining suitable land. With the increasing dependence upon the export market which will result from expansion of production, considerable attention is being paid to improvement in yield and quality as a means of offsetting the comparatively high labour costs. To this end, selected seed has been imported from East Africa, selections for vegetative propagation are being made within the Colony of bushes of outstanding character and new seed-bearer gardens are being established in the isolated Nouvelle Découverte region. The Tea Committee has under consideration the reorganization of the industry to meet changed conditions as well as the problem of additional factory capacity.

7. The Department has rendered assistance to the fibre industry through technical co-operation with the Sack Factory, investigation of decortication and retting processes, experimentation with Mauritius hemp (aloe fibre), trials of other fibre plants and exploration of new uses for Mauritius hemp.

8. Work at the Tobacco Research Station, to which the Tobacco Board contributes, has been directed mainly towards assisting the Board's policy of improvement of the production of Virginian tobacco (New Varieties) with the aim of replacing a substantial portion of the current imports of leaf and cigarettes and of ultimately exporting, should oversea market conditions become more favourable. As regards the export market, there is no demand for flue-cured Amarello and only occasional and very small orders for certain grades of Air-cured Amarello (Burley), while it is not possible at present to supply Virginian in either the quantity or at the prices demanded by the oversea market. Under the circumstances, the only immediate possibility of expanding local production is through good quality Virginian capable of replacing the Virginian leaf and manufactured Virginian cigarettes which are imported into the Colony in significant amount. Progress has been made towards this objective despite the increasing competition from a multiplicity of brands of cheap imported cigarettes which are appearing on the local market.

9. Owing to shortage of land consequent on increasing diversion of arable land to cane cultivation, the Department has encouraged the production of cash and food crops which are of high monetary or nutritive value, particularly those which can be produced in conjunction with cane cultivation. Work of the experimental stations and the extension service has been directed towards

increased production of potatoes, maize, legumes and protective vegetables. Progressively increasing sales of acclimatized and tested seeds produced at the Barkly Experimental Station is an indication that some success is being achieved as regards legume and vegetable production. Unfortunately, besides the main limitation of availability of land, there are a number of other factors militating against production of food crops, such as praedial larceny, difficulties in regard to supply of potato seed, and the occurrence of maize rust (which, however, has greatly diminished in virulence over recent years).

10. Progress in the resuscitation of citrus, which has been nearly completely eliminated from the island by disease, has been necessarily extremely slow. Resistant budded plants have been produced on the experimental stations, but it will be a number of years before sufficient bud-wood is available to allow large scale production of plants for distribution to the public.

11. Capital development of the existing land settlements at Terre Rouge, Richelieu, Petit Sable and Palmar has been largely completed except for certain irrigation works at Terre Rouge and Richelieu, while the Relief Allotments have been maintained. These schemes are fully tenanted and a considerable demand for holdings still remains unsatisfied. Recommendations were submitted to the Government and, at the end of the year, Executive Council approved an expanded scheme for leasehold allotments on the same pattern as the present land settlements, with the exception that the Department will not undertake the initial erection of housing. Acquisition of suitable land is likely to constitute a major problem in implementation of this policy.

12. Breeding policy in regard to dairy cattle consists in improvement by selection within the local Creole breed. In pursuance of this policy, the heterogeneous collection of cross-bred animals at the Government Dairy has been disposed of and the Creole herd at the Palmar Breeding Centre has been enlarged by purchase. Although selection is still in its early stages, considerable increases in both body-weight and milk production are evident in the Palmar Milking herd. Holdings of departmentally-bred Creole bulls have been considerably built-up with the objective of supplying progeny-tested bulls to the Artificial Insemination Service.

13. Owing to shortage of veterinary staff, little progress has been made in regard to elimination of tuberculosis in the beef herds—an essential preliminary to implementation of the proposed policy of upgrading with imported bulls of improved tropical breeds of beef cattle. Although the disease position is better than it was two years ago, there is still only one herd in the Colony, other than the Department's Ongole herd at Palmar, which is completely free of tuberculosis. As and when veterinary staff can be recruited, an intensive campaign for the eradication of tuberculosis amongst herd cattle will be carried out with the co-operation of the Mauritius Stock Breeders' Association.

14. The Animal Husbandry Service has continued to provide artificial insemination, pregnancy assessment, simple veterinary treatment and an advisory service throughout the Colony. While there has been an appreciable increase in the number of dairy animals throughout the island, production of milk per head remains at a low figure. This is entirely the result of inadequate

feeding and not of any lack of milk potential in the breed, as evidenced by the fact that cows bought in from cow-keepers by the Department during the year have all, in their first subsequent lactation, tripled or quadrupled their previous yield. The extremely low level of nutrition of peasant-owned animals is also manifested by the increasing incidence of deficiency-diseases demanding attention by the extension officers. Of these, a soft-bone-paralysis complex, thought to be hypocalcemia, is very prevalent at the end of the crop season when animals have been for long periods on a diet of cane-tops, a fodder of low nutrient value.

15. Investigation of fodder-production, drying of grass and acacia, and silage-making has continued with the object of devising some alleviation of the acute fodder problem throughout the island. This problem is yearly becoming intensified with the increasing cattle population and the continued diversion of land to cane-cultivation and building purposes. During the latter part of the year the Legislative Council adopted resolutions for the appointment of an *ad hoc* Committee to investigate the production of milk and meat in the Colony and the related problem of production and distribution of fodder.

16. The Maize Mill continued to manufacture animal feeds for sale to the public at cost—or rather at less than cost, since materials and labour only are charged, capital expenses and salaried staff being borne by the Government. In order to make these products more easily available, an extension shop was opened in Rose Hill. Sales have, however, only risen slightly and are still negligible in proportion to the livestock population of the island. Reluctance of the small cow-keeper to purchase concentrates is a major limiting factor to the island's milk production. Extended use of the Maize Mill feeds, even of the cheap ureated molasses mixture, would also materially assist in controlling the prevalence of deficiency diseases owing to their balanced mineral contents. With the establishment of the district centres of the Extension Service during the next few years, it is proposed to stock these feeds and attempt to popularize their use.

17. More attention is to be given to poultry and units are under construction at the Richelieu and Curepipe experimental stations which will be used for instructional purposes and for the production of hatching eggs and chicks for sale to the public. With the return of an officer being trained in poultry husbandry in the United Kingdom, it is proposed to engage in extension work and to expand departmental breeding facilities.

18. Development of the College of Agriculture and diversification of its teaching are matters which have received attention. The new buildings opened during the year have enabled the intake of students to be doubled. The teaching syllabus is under review with the intention of strengthening the teaching of practical agriculture while maintaining standards of instruction in sugar technology. Inability to recruit a lecturer in agriculture has, however, been a handicap.

19. Considerable progress has been made on the experimental stations in the development of fresh water fish-farming. Information has been obtained and stocks of fish have been built to the point where it will be possible to undertake extension work in the near future.

20. The Fisheries Divison has been concerned mainly with the conservation of lagoon fisheries. An investigation of off-shore fishing with motorized pinnaces was undertaken in Rodrigues, but results indicated that this would probably be uneconomic.

21. A land utilization map has been prepared from an aerial survey carried out some years ago and this map is now being brought up to date. A soil survey of the island has been commenced in co-operation with and under the dirction of the Sugar Research Institute.

22. A comprehensive development plan for the agricultural rehabilitation of Rodrigues was approved and put into operation during the latter part of the year.

23. The policy of close collaboration with the neighbouring territories of Réunion and Madagascar has been maintained under the auspices of the *Comité de Collaboration Agricole* Maurice—Réunion—Madagascar. Co-operation of this nature is of vital importance to Mauritius in view of the necessity of mutual action to prevent the spread of Fiji disease of sugarcane from Madagascar and to breed and test resistant varieties. Collaboration has also been useful in many other directions.

II. Boards and Committees

24. Departmental officers have served on the following:—

Agricultural College Advisory Board*
Board of Agriculture, Fisheries and Natural Resources†
Board of Examiners of the College of Agriculture*
Board of Examiners for the Registration of Agricultural Chemist*
Cane Release Committee‡
Comité de Collaboration Agricole Maurice—Réunion—Madagascar†
Customs Tariff Advisory Board
Cyclone and Drought Insurance Board
Executive Committee, Board of Agicrulture, Fisheries and Natural Resources†
Fisheries Advisory Committee‡
Irrigation Committee‡
Land Acquisition Board
Land Settlement Committee‡
Malaria Advisory Board
Mauritius Sugar Industry Research Institute Board
Pig Keeping Committee‡
Research Advisory Committee, M.S.I.R.I.
Sack Factory Board
Sugar Industry Rehabilitation Fund Committee*
Sugar Industry Reserve Fund Committee
Sugar Millers' Rehabilitation Fund Committee*
Sugar Planters' Rehabilitation Fund Committee*
Tea Committee*
Tobacco Board*

*The Chairman a departmental Officer.
†The Vice-Chairman a departmental Officer.
‡A Committee of the Board of Agriculture, Fisheries and Natural Resources.

III. Board of Agriculture, Fisheries and Natural Resources

25. The Board was composed as under:—

The Liaison Officer for Agriculture *(Chairman)*
The Director of Agriculture *(Vice-Chairman)*.
The Financial Secretary or the Deputy Financial Secretary
The Director of Public Works and Surveys
The Conservator of Forests
The Registrar of Co-operative Societies
The Fisheries Officer
The Liaison Officer for Labour
The Hon. J. G. Forget
The Hon. A. M. Osman, O.B.E.
The Hon. V. Ringadoo
The Hon. G. Venkatasamy

Nominated by the Mauritius Chamber of Agriculture:—
Mr. P. G. A. Anthony

Nominated by the Tea Committee:—
Mr. Maurice Martin

Nominated by the Hemp Producers' Syndicate:—
Major A. Maingard de Ville-es-Offrans

Nominated by the Tobacco Board:—
Mr. E. F. Cripps, M.B.E.

Nominated by the Mauritius Stockbreeders' Association:—
Mr. Robert de Spéville

Nominated by the Société de Technologie Agricole et Sucrière:—
Mr. Maurice Paturau

Millers representative:—
Mr. Claude Noël

Planters' representative:—
Mr. Sooroojparsad Ramudhin

26. Early in the year Mr. Maurice Martin resigned from the Board and was replaced by Mrs. L. M. E. Rochecouste. Consequent on preliminary constitutional changes resulting in the abolition of the Executive Council Liaison Officers, the acting Financial Secretary assumed the chairmanship of the Board in November, replacing the former Liaison Officer for Agriculture.

27. The Board held 8 meetings during the year and its Executive Committee met on 9 occasions. The main work undertaken by the Board or its Executive Committee is summarized below:—

(a) Approval of the recommendations of the Cane Release Committee in regard to the revised schedule of approved cane varieties.

(b) Approval of the recommendations of the Net Permits Committee in regard to grant of permits for large nets during 1956.

(c) Consideration of a request from the Mauritius Tobacco Producers' Syndicate for *Pas Géométriques* lands to be made available for tobacco planting.

(d) Grant of financial assistance to enable a comprehensive cattle census to be carried out by the Department of Agriculture.

(*e*) Submission to the Government of recommendations regarding partial relaxation for a trial period of the restrictions on slaughter of milk cattle.

(*f*) Submission to the Government of recommendations that the different duties in regard to Crown Lands and *Pas Géométriques* be allocated separately to the three departments concerned with their management.

(*g*) Consideration of the development of co-operative marketing in Rodrigues and the establishment of a marketing board.

(*h*) Consideration of the matter of fishing rights in reservoirs.

(*i*) Consideration of excisions from, and transfers of, leases of campement sites.

(*j*) Submission to the Government of recommendations regarding the renewal of shooting and fishing leases on Crown Lands allocated for tea-planting development.

(*k*) Submission of a recommendation that Government should supplement the financial aid granted by the Sugar Industry Reserve Fund Committee to the Mauritius Sugar Industry Research Institute for the purpose of carrying out experiments on overhead irrigation of Sugarcane.

(*l*) Consideration of the suppression of enclaves in Crown Forest Lands.

(*m*) Consideration of the reafforestation of all slopes unsuitable for agriculture.

(*n*) Consideration of the extension of irrigation in the Colony.

(*o*) Consideration of the report of the Fisheries Advisory Committee and its reference back to the committee in view of certain differences of opinion among the members expressed therein.

(*p*) Consideration of a petition from fishermen in regard to widening of a pass in the reef.

(*q*) Allocation of sardine net permits.

(*r*) Recommendation to the Transport Advisory Board on a matter concerning the carriage of fish.

(*s*) Initiation of a survey of potential off-shore fishing banks around Mauritius.

28. The following standing committees of the Board functioned during the year:—

(*a*) *Irrigation Committee.*—Which advises the Director of Public Works on matters concerning the distribution of irrigation water;

(*b*) *Cane Release Committee.*—Which advises the Central Board in regard to the release for general planting of new sugarcane varieties;

(*c*) *Land Settlement Committee.*—Which advises the Director of Agriculture on the administration of land settlements.

29. The following *ad hoc* committees were also appointed:—

(*a*) *Fisheries Advisory Committee.*—To consider the organization and policy of the Fisheries Division;

(*b*) *Pig Breeding Committee.*—To determine the possibilities of establishing a pig industry in Mauritius and the conditions under which it should be developed.

IV. Mauritius Chamber of Agriculture

30. The Mauritius Chamber of Agriculture continued its function as the authoritative body representing the agricultural industry of the Colony both locally and in London. Delegates of the Chamber sat on a large number of the statutory boards and committees concerned directly or indirectly with agriculture. The activities of the Chamber of Agriculture are fully described in the President's annual report for the year 1956–57.

V. Comité de Collaboration Agricole Maurice—Réunion—Madagascar

31. During the year the Committee operated under the chairmanship of the Inspector General of Agriculture in Madagascar with the Directors of Agriculture in Reunion and Mauritius as vice-chairmen.

32. As in previous years, the work of the Committee consisted mainly in the interchange of planting material and beneficial insects, consultation on problems of mutual interest, such as the control of Fiji Disease in Madagascar, and exchange of agricultural workers.

33. Mauritius supplied shipments of borer-parasites to Réunion and Madagascar, cane plants to Madagascar, and entered into an arrangement for the testing of Mauritius cane varieties in Madagascar as to resistance to Fiji Disease.

34. Among a comparatively large amount of visits undertaken under the auspices of the Committee, the following are of main interest from the Mauritius view point:—

(a) Visit by Messrs Roche and Riquier, Madagascar pedologists, to advise on the broad lines of the proposed soil survey of Mauritius.

(b) Visit by M. Velly, agricultural chemist from Madagascar, to enquire into fertilizer practice and foliar diagnosis in Mauritius.

(c) Advisory visit by Mr. Deane, Tea Officer, to Madagascar and Réunion.

(d) Visit by Mr. Antoine, Plant Pathologist of the Sugar Research Institute, to inspect control measures against Fiji Disease in the Brickaville area of Madagascar.

(e) Study tour in Madagascar, by Messrs Parish and Feillafé of the Chemistry Division of the Sugar Research Institute in connection with the proposed soil survey of Mauritius.

(f) Visit by the Principal and selected students of the College of Agriculture to Réunion.

35. The annual conference was held in Madagascar at the end of November. The Mauritius delegation consisted of the Director of Agriculture, the President of the *Société de Technologie Agricole et Sucrière*, the Director of the Sugar Research Institute, the Chief Agriculturist of the Sugar Research Institute, the nominee of the Central Committee of Estate Managers and the Secretary of the Mauritius Sub-Committee. The President of the Chamber of Agriculture was unfortunately unable to accompany the delegation.

36. After a tour which included visits to the Fiji Disease affected area, land settlement and agricultural extension projects, a fish-breeding and forestry station, a seed multiplication station, the agricultural college and the main agricultural experiment station at Lac Alaotra, the Committee met in formal conference at Ambatobe near Tananarive on the 24th November. The Director of Agriculture, Réunion was elected Chairman for 1957 and the Inspector General of Agriculture, Madagascar and Director of Agriculture, Mauritius were appointed vice-chairmen. It was agreed to hold the 1957 Annual Conference in Réunion and the following programme for 1957 was arranged:—

(a) The Plant Pathologist of the Sugar Research Institute to visit the Brickaville area of Madagascar between May and October to observe progress in the control of Fiji Disease and to collaborate on resistance trials.

(b) A geneticist from either Mauritius or Réunion to visit Madagascar towards the end of June for the purpose of furnishing positive identification of the cane varieties under test.

(c) M. Bremiere, an entomologist from Madagascar, to pay two visits to Mauritius for the collection of *Xanthopimpla* and *Apanteles*, parasites of cane-borers.

(d) An entomologist from Mauritius to visit Madagascar in connection with studies for the control of *Perkinsiella*, the vector of Fiji Disease.

(e) Pupils of the Mauritius College of Agriculture, accompanied by a staff member, to visit Madagascar for a fortnight between July and September for the purpose of seeing the agricultural laboratories and college at Ambatobe, the *Institut de Recherche Scientifique de* Madagascar and the agricultural station at Lac Alaotra.

(f) Mauritius to receive a visit from Réunion agricultural students accompanied by their professors, about August.

(g) Madagascar to supply seed-potatoes for test in Mauritius and this to be followed up by a visit during the growing season from M. Breton, the officer chiefly concerned with the production of potatoes in Madagascar.

(h) Samples of tea from Réunion to be evaluated in Mauritius.

(i) Delegates from Réunion and Mauritius to visit Madagascar about March to inspect the new Mallet disinfection plant being erected at Tamatave to enable Madagascar to export fruit and other agricultural produce entirely free from viable insect pests and diseases.

(j) An observer from the *Commission de Coopération Technique pour l'Afrique au Sud du Sahara* to be invited to attend the 1957 Conference.

(k) Various other visits between Réunion and Madagascar, of no immediate interest to Mauritius.

(l) *Ad hoc* visits to be arranged between the three regional sub-committees as and when necessity arises.

37. The costs of the operation of the Mauritius sub-committee have been met by a subvention from the Sugar Industry Reserve Fund Committee.

VI. College of Agriculture

College Advisory Board

38. The Advisory Board for 1956 was composed as follows:—

The Director of Agriculture *(Chairman)*.
The Principal *(Vice-chairman)*,
The Liaison Officer for Agriculture.

Nominated by H.E. the Governor:—

Mr. P. G. Anthony.
Mr. Maurice Martin.

Nominated by the Chamber of Agriculture:—

Mr. L. Baissac, M.B.E.
Mr. Raymond Hein, Q.C.

Nominated by the Société de Technologie Agricole et Sucrière de Maurice:—

Mr. P. de Sornay, *Chevalier de la Légion d'Honneur.*
Mr. René Leclézio.

Nominated by the Association of Former Agricultural Students:—

Mr. H. Cyril Mayer.

The Board held four meetings during the year.

Development

39. Work commenced last year on the extension of the College was completed just after the middle of the year and the new buildings were formally opened in November by His Excellency the Officer Administering the Government. The new block provides accommodation for a physics laboratory, drawing room, lecture rooms, lecturers' offices, students' common rooms and dining hall. The extension has enabled the student intake to be greatly increased.

Teaching

40. The College offers a three year course leading to the Diploma in Agriculture, an eighteen month course for the Certificate in Sugar Analysis and a one year course for the Certificate in Tropical Agriculture and Cane Cultivation.

41. The Syllabus is in process of being revised, but the sub-committee appointed by the Board in 1955 under the chairmanship of the Principal has not yet reported.

42. Unfortunately the staff is not yet up to strength, the posts of Lecturer in Agriculture and Assistant Lecturer in Sugar Technology being vacant. The duties of the vacant posts, as well as the teaching of applied subjects, was undertaken by part-time lecturers, mainly officers of the Department of Agriculture and the Sugar Research Institute.

Entrance Examinations and Scholarships

43. 39 candidates applied for admission to the Diploma Course and sat the entrance examination which was held in April. Of these, 28 satisfied the examiners and were admitted as full time students to the first year of the Diploma course. There were also 19 candidates for the Sugar Analysis Course, 7 of whom were accepted and 25 for the Tropical Agriculture Course, all of whom were admitted.

44. The first three Government Scholars were admitted under the new scheme whereby three annual scholarships of a value of Rs 1,800 per annum plus free tuition and travelling are to be awarded for the purpose of assisting recruitment to the Department of Agriculture. The recipients, who are bonded to enter the Government Service on completion of their studies, are selected by the Public Service Commission on the basis of interview and their results in the Higher School Certificate, subject to having passed the College Entrance Examination.

45. The ordinary College Entrance Scholarships, awarded on the results of the Entrance Examination, were won by Messrs E. Piat and F. Lamport.

Student Body

46. The number and distribution of students at the College is tabulated below:—

Course	*1956*	*1955*	*1954*
Diploma	52	34	27
Tropical Agriculture and Cane Cultivation ...	25	9	9
Sugar Analysis	7	7	7
Part-time	8	11	12
Total Number of Students ...	92	61	55

47. The intake of 28 first-year students to the Diploma Course, enabled by the extension of the College, is the highest on record.

48. Attendance at the Sugar Analysis Course, which was started in 1954 with the object of training personnel for sugar estate laboratories and for the Central Board, continues to be poor and the Advisory Board has had under review the desirability of maintaining this course.

Examination Results and Laureateships

49. The results of the annual examinations held in April are tabulated below:

	1956		*1955*	
	Sat	*Passed*	*Sat*	*Passed*
First Year, Diploma Course	17	14	12	9
Second Year, Diploma Course	10	10	9	7
Third Year, Diploma Course	7	7	6	6
Certificate in Tropical Agriculture and Cane Culture	—	5	—	5
Certificate in Sugar Analysis	—	4	—	4

50. Of the 3 failures in the First Year examinations, two are repeating the first year course and one has withdrawn from the College.

51. None of the 7 successful candidates for the Third Year examinations qualified for an Honours Diploma and accordingly no Laureateship was awarded in 1956 for overseas study.

Examination in Sugar Manufacture of the City and Guilds of London Institute

52. This examination was sat in May by a number of graduates of the College. Results are shown below:—

	1956	*1955*
Number of candidates	9	6
Number passed	9	6
First class honours	4	5
Second class honours	5	1

53. Mr. Claude Hein was awarded the Silver Medal of the Institute.

Awards

54. The annual prize-giving was postponed to the 29th November so as to concide with the opening of the new buildings by His Excellency the Officer Administering the Government. Besides the normal presentation of prizes, certificates and diplomas, the opportunity was taken to mark the occasion of the expansion of the College by the award of honorary Diplomas to two gentlemen closely associated with the establishment and development of the College. Diplomas *honoris causa*, the first in the history of the College were presented to Mr. Pierre de Sornay, a member of the committee that planned the College and thereafter continuously a member of the Advisory Board and to Mr. Maxime Koenig, who was the first Registrar of the College.

Annual Visit to Réunion Island

55. Under the auspices of the *Comité de Collaboration Agricole*, the annual visit to Réunion was made in August by a party of six third-year Diploma students accompanied by the Principal and an Assistant Lecturer. During a stay of one week as guests of the *Services Agricoles* of Réunion, the party undertook a study-tour of agricultural activities in the island.

VII. Central Board

56. The Central Board operates under the Sale of Canes (Control) Ordinance and was composed as follows during the year 1956:—

Mr. D. E Hugues, District Magistrate *Chairman*.

Mr. E. Jullienne
Mr. A. Harel } Millers' representatives

Mr. G. Rey
The Hon A. M. Osman, O.B.E. } Large planters' representatives

Mr. M. Burrenchobay, M.B.E.
Mr. J. Chundunsing } Small Planter's representatives

57. Apart from the above members constituting the Board, a panel of names was approved by His Excellency the Governor as substitute members for appointment as occasion might arise. These were:—

Mr. F. North Coombes Mr. M. Rey Mr. G. R. Park	Millers' representatives
Mr. Ernest Fayd'herbe Mr. Lilcant Madhoo Mr. Jacques Lagesse Mr. Jascarun Dookun	Large Planters' representatives
Mr. R. Deelchand Mr. M. Ramdin	Small Planters' Representatives

58. Appointments were made from the panel to replace members of the Board who were either interested parties in a case before the Board or unable to attend a meeting.

Meetings of the Board

59. The Borad held 40 meetings during the year, as follows:—

8 meetings relative to assessment of sugar to planters,

9 meetings relative to applications for changes of delimitation of factory areas,

8 meetings relative to protests against assessment of sugar,

2 meetings relative to closing down of weighbridges,

4 meetings relative to transport rates,

9 meetings relative to general business.

Cane Testing

60. The number of tests carried out was 12,230 covering 282 individual planters or groups of planters supplying canes to twenty-five factories.

61. The corresponding figures for the 1955 crop were 10,982 tests, 208 individual planters or groups of planters and twenty-four factories.

Assessment of Sugar

62. Following the publication of provisional assessment figures of sugar to planters for the 1955 crop, 18 co-operative credit societies, 1 middleman, 6 planters and the Mauritius Planters Association lodged protests against the awards made by the Board:—

One protest was received from a miller.

One middleman withdrew his protest.

The other cases were heard by the Board and were rejected, except one where the Board re-assessed the amount of sugar to certain planters of a co-operative credit society, increasing the amount originally awarded by 2·5 kgs per ton of canes.

Cost of production

63. Early in the second quarter of the year, questionnaires were sent out to 200 selected planters and 26 millers. The response was on the whole satisfactory. Planters' cultivation costs and millers' costs for the 1955 crop are now being calculated for the information of the Board.

Transport costs

64. The payment to millers for the transport of planters' canes on the basis of ton-miles, which has been the practice since the creation of the Board, was discontinued in 1956. The formulas adopted for the 1956 crop were $C = Rs\ (2.00 + .25 \times m)$ and $C = Rs\ (3.30 + .55 \times m)$ for road and rail transport respectively, where C = cost of transport per ton cane and m = miles over which transport is effected.

Delimitation of factory areas

65. Fourteen applications for changes of delimitation of factory areas were received by the Board. In two caes the requests were granted.

Permits to operate sugar factories

66. 25 permits were issued to twenty-five factories.

Permits to middlemen

67. 61 permits were delivered to middlemen during the year.

The tonnage of planters canes purchased by individual middlemen varied from 400 tons to 25,000 tons.

Complaints against Middlemen

68. 22 complaints against middlemen's dealings with planters were received in 1956. The parties were invited to attend the office of the Registrar, and after computation of figures, amicable settlement was reached in all cases so far dealt with. A few cases are still pending.

Cane Contracts

69. 12,392 cane contracts were registered. The total number of contracts in force for the 1956 crop was 14,376 of which 12,976 referring to 20,223 planters were on a provisional basis. The total number of planters was 21,623.

Breach of Sale of Canes (Control) Ordinance

70. Some cases of breach of the Sale of Canes (Control) Ordinance, 1941 have been reported to the Police and prosecutions were instituted against those contravening the provisions of the Ordinance.

71. Some planters entered into contracts with more than one middleman in breach of the terms of their original contract. On different occasions, planters knowingly sold their canes to a factory other than the one in whose area their lands are included.

72. Some planters fail every year to enter into contract with sugar factories prior ot the 30th June in spite of notices published to that effect in the press. Their grounds for not entering into contracts within the prescribed delay are always illness or forgetfulness.

Cane Varieties

73. The Central Board approved the recommendation of the Cane Release Committee of the Board of Agriculture, Fisheries and Natural Resources that certain of the older cane varieties now no longer of economic importance, should be removed from the list of varieties authorized by proclamation under the Sugar Cane Plantations (Control) Ordinance. Accordingly a new Proclamation, No 5 of 1956, was issued under the Ordinance. This specified a revised list of approved cane varieties and directed that all others should be uprooted within six years. The varieties now approved for planting are:—

M 134/32 (together with its White and Striped sports),
M 112/34, Ebene 1/37, B.H.10/12, B.3337, B.37161,
B.37172, M.147/44, B 34104, M 31/45.

Control of Cane Weighbridges

74. 149 weighbridges were tested during the year. On first inspection 143 were found to be accurate and 6 had to be re-examined. All were found accurate on second examination. None was condemned. One old weighbridge was replaced by a new one. Three weighbridges were closed down with the Board's approval.

Control of cane weighbridges during crop time

75. During the 1956 crop, 6 weighbridges were re-examined, 4 of them at millers' requests and 2 at planters' requests. Of the former, 3 were found accurate up to 6 tons but had to be re-adjusted for weighing above 6 tons; one was found correct. Of the latter, both were correct.

Surprise checks carried out at weighbridges during the crop

76. During the 1956 crop, 309 surprise checks were carried out and 272 vehicles were re-weighed (189 carts and 83 lorries). In 11 sases the weights were found inaccurate and the weighers were prosecuted. In addition nine warnings were given to weighers for inaccurate weighing.

VIII. Mauritius Sugar Industry Research Institute

77. The Institute, the successor of the Department's Sugarcane Research Station and now in its third year of independent existence, continued to make satisfactory porgress in its development and research programmes.

78. Further delay has been encountered in regard to delivery of the Bacteriological Laboratory buildings purchased from the Government and the main offices and laboratories, other than chemical, remain in temporary accommodation provided by the Department. It is expected, however, that it will be possible to commence alterations and extensions at the Bacteriological Laboratory site by the middle of 1957 and that the Institute will be able to move to its new headquarters during the early part of 1958.

79. Other aspects of development have, however, proceeded according to plan. At Reduit a heat treatment plant for cane setts has been installed and the Arcon building has been extended so as to accommodate the new soils laboratory. The field area of the experimental stations has also been increased. The chemistry, sugar technology and soil survey laboratories have been equipped and meteorological equipment purchased.

80. A division of Sugar Technology was started in January with the appointment of the former Lecturer in Sugar Technology at the Agricultural College as Sugar Technologist of the institute. Subsequently an Assistant Sugar Technologist and a Laboratory Assistant were appointed. The new division took over from the Department responsibility for reasearch in sugar technology and for the production of the bulletins of comparative factory data during the course of the sugar crop.

81. The Plant Breeding division was strengthened by the appointment of a Geneticist, who is to assume duty in 1957 after completion of postgraduate studies.

82. An Entomology division, which completes the scientific establishment of the Institute, is to be set up early next year. In the mean time, the Department continues work in connection with sugarcane pests and their control.

83. The decision was made to undertake, with asistance from the Department of Agriculture, a soil survey of the entire island. This survey is to be under the direct control of the Chemist of the Institute. A draughtsman-photographer has been recruited in connection with the survey. The assistance to be provided by the Department consists of the gift of a Land Rover for transport purposes, the secondment of a Scientific Assistant for analytical work, the provision of aerial survey photographs and the loan of a Beckman spectrophotometer. The soil survey, expected to take about three years to complete, will be of material benefit, not only to the sugar industry, but to agricultural development in general.

84. The research work undertaken during the year is fully reported in the Institute's Third Annual Report.This publication stresses the importance of the cane-breeding programme and the connected pre-release trials, draws attention to the widespread phosphate deficiency and fertilizer unbalance shown by the results ot foliar diagnosis, reports that fertilizer trials have shown a response to calcium on the gravely soils of the superhumid zone, records progress in the investigation of measures of controlling Ratoon Stunting and Chlorotic Streak diseases, and provides an account of work on weed control and the use of herbicides.

85. Experimental work will be extended next year to include a project for investigation of overhead irrigation of sugarcane. This is to be financed by the Government and the Sugar Industry Reserve Fund and will, in effect, be a continuation of the preliminary investigations carried out in 1953–54 by the Irrigation Committee of the former Natural Resources Board in co-operation with the Public Works Department. The results of these proposed experiments may have an important economic bearing, as an appreciable proportion of the Colony's cane lands are in areas of marginal rainfall and irrigation water is of limited availability.

86. The Institute and the Department have maintained their close collaboration, particularly in regard to extension work with small planters. For instance, the foliar diagnosis laboratory of the Institute undertakes routine examination of leaf samples in connection with the Department's advisory work with small planters regarding their fertilizer practices. Similarly

other experimental results obtained at the Institute are rapidly communicated to the Extension Service of the Department for the instruction of planters. The Director of Agriculture served on the Executive Board of the Institute throughout the year, while the administrative, research and extension sections of the Department were represented on the Institute's Research Advisory Committee. The Cane Quarantine Greenhouse, for which the Department is responsible, was jointly supervised by officers of the Department and the Institute.

IX. Sugar Industry

Crop Results

87. The 1956 sugar production of 571,848 metric tons was another record, exceeding the previous record, set last year, by over 38,500 tons. Comparative figures for the last three years are tabulated below:—

Year	Arpents under Cane		Cane Ground	Sugar made
	Total	Harvested	metric tons	metric tons
1954	178,823	168,442	4,280,078	498,560
1955	180,050	168,159	4,227,757	533,261
1956	180,212	167,901	4,421,427	571,848

Year	Sucrose	Tons per Arpent		Yield Sugar	Av. Grinding of Factories		
	% Cane	Cane	Sugar	% Cane	Tons Cane per hour	Hours per day	Days
1954	13.44	25.4	2.96	11.65	67.8	19.4	119
1955	14.24	25.1	3.17	12.61	69.5	19.9	113
1956	14.62	26.3	3.39	12.93	81.5	20.9	109

Crop Conditions

88. Following the near passage of a cyclone at the end of January, excellent growing weather prevailed until the start of the crop. Drought conditions in the crop season between July and the end of November favoured maturity, while December rainfall was beneficial to new growth. The record production of sugar was due in large part to these exceptionally favourable climatic conditions as well as to a number of other factors, such as adequate labour, increased factory capacity which allowed a greater proportion of the crop to be ground at the period of maximum maturity, better cane varieties, greater use of disease-free planting material and the gradual improvement which is being effected in cultural and fertilizer practices.

Cane Varieties

89. The replacement of M.134/32 by Ebene 1/37 and B.3337 in the uplands is continuing. These two varieties are better suited to the superhumid zone and their increasing use in this region is making a significant contribution to both yield and quality of cane. Increased general planting of the Barbados seedlings is also in evidence. During the year, the varieties M.147/44, M.31/45, White M.134/32 and B.34104 were released for general cultivation. Of these, M.147/44 is likely to be a good general purpose variety with early maturity and high sucrose—content, while M.31/45 is adapted to high rainfall conditions. It is noteworthy that of the total cane reaped during this year's crop, 83 per cent was ratoon.

Quotas and Prices

90. The " negotiated price " quota exportable to the United Kingdom under the terms of the Commonwealth Sugar Agreement reverted from 351,000 long tons to the original 335,000 tons as a result of the loss of a share in the New Zealand allocation as from the end of 1956. The balance of the overall agreement quota of 470,000 long tons is exportable to the preferential markets. Additional to this overall quota under the Commonwealth Sugar Agreement, Mauritius has an International Sugar Agreement quota of 15,054 tons for 1956 in respect of sales to the free market.

91. The Commonwealth Sugar Tables were held, as usual, in London in November. The negotiated price of £40-15-0 was increased to £42-3-4 per ton for 1957 and the Commonwealth Sugar Agreement was extended for a further year to 1964.

92. As from the 1st January, 1957 the import sugar trade in the United Kingdom is to revert from the Ministry of Food to private hands.

Sugar Exports

93. Exports for the year were as follows:—

	Long tons
To United Kingdom	413,434
Canada	86,452
Ceylon	14,369
Dar-es-Salaam	1,500
Singapore	1,300
Penang	3,100
Port Swettenham	700
Seychelles	865
Total Exports ...	521,720

(530,068 m. tons).

The above includes 12,930 long tons shipped to the United Kingdom in January against the 1955 " negotiated price " quota, but includes 3,200 tons shipped after the end of the year against the 1956 quota. The exports to the Seychelles are classed as local sales under the Commonwealth Sugar Agreement. Roughly one-third of the exports were shipped in bulk.

Alcohol

94. Production at 1,732,249 litres (100°G.L.) was slightly less than last year's figure of 1,800,983 litres. The greater part of this production was used locally as rum, denatured spirit and power alcohol. Exports were only 25,483 litres, shipped mainly to Hong Kong. The export demand for hydrated alcohol has now practically ceased.

Molasses

95. Total production was 118,716 metric tons, of which 52,694 were exported. The export value again rose, being Rs. 64.58 f.o.b. per ton as compared with Rs. 54.51 and Rs. 50.18 in 1955 and 1954 respectively. The unexported balance was utilized locally for fertilizer, distillation and stock feeding.

Bagasse

96. No progress has been made in regard to projects for the utilization of surplus bagasse. Enquiries conducted by an overseas concern interested in the production of bagasse-pulp for export revealed that supplies were as yet inadequate to justify the establishment of a pulping plant. Manufacture by the Department of a urea-molasses-bagasse mix for cattle-feeding (ureated molasses) continues to meet with a disappointing reception by the public in spite of the fact that there is need for a cheap protein substitute, having regard to the facts that concentrates are expensive and rarely used and the bulk of the cattle population suffers from gross malnutrition.

Cyclone and Drought Insurance Fund

97. At the end of the year, the assets of the Fund exceeded Rs. 97 million The Board has, in cooperation with the Chamber of Agriculture, been examining the existing legislation with a view to devising more simplified and practical procedures in regard to premiums and compensation.

The Sugar Industry Rehabilitation Funds

98. The committees of the Sugar Industry, Sugar Millers' and Sugar Planters' Rehabilitation Funds continued their routine functions. The last named, which also operates the Sugar Planters Mechanical Pool, has under consideration measures for ensuring to small planters an adequate supply of disease-free planting material of the improved cane varieties. It is considered that lack of suitable planting material is one of the main factors involved in the lower yields per acre obtained by small planters as compared with large planters and estates.

X. Tea Industry

Tea Committee

99. The Tea Committee met on nine occasions during the year under review, and a sub-committee thereof held two additional meetings. The 1956 Tea Committee was constituted as follows:—

Controller of the Tea Industry—Director of Agriculture, *Chairman*

Consumers' Representatives—Dr. the Hon. C. E. Millien, *Vice Chairman*

Hon. G. Venkatasamy

Mr. L. Larcher, Mr. L. Ramdin — Manufacturers' Representatives

Mr. M. Martin, Mr. L. Seegobin — Planters' Representatives

Mrs L. M. E. Rochecouste, Mr. M. Merven — Additional Appointed Members

100. A sub-committee was appointed to make allocations under the Tea Development Plan of:—

(a) grants to assist in development of private lands,

(b) leases of Crown Land for tea planting.

Legislation

101. *Promulgated. The Tea Industry Control (Marketing) Regulations, 1955* introduced new measures to control tea distribution in the Colony. The overall effects of this legislation were elimination of packing and blending in premises other than tea factories and standardisation of packet weights.

The Tea Industry Control (Amendment) Ordinance, 1956 introduced the means whereby the form of contract to be employed in the sale or purchase of green leaf may be varied by the prescribing authority.

The Tea Industry Control (Sale of Leaves) Regulations, 1956 (together with a minor subsequent amendment) imposed control over the price at which sales or purchases of green leaf may be effected in the Colony.

102. *Recommended by the Tea Committee.* A new draft Ordinance and connected Regulations were scrutinised and approved by the Tea Committee. This new legislation has been framed to introduce a considerable degree of reorganization into administrative and technical control over the Mauritian Tea Industry and to render possible the establishment of a central Tea Control Board, a subsidiary central tea marketing organisation and the operation of a price stabilization fund.

Brokers' Report Service

103. This service—foreshadowed in last year's report, and constituting a further step towards improvement of quality in Mauritian teas—was put into operation towards the end of the year. A number of representative samples from all factories were despatched by air for report and valuation. Whilst there was a wide divergence in reports as between one factory and another, these were not—in the main—unsatisfactory. The service is proving to be a useful adjunct and will continue in operation during the coming year.

Care of Green Leaf

104. Towards the end of the year an agreement with H.M. Prisons for the manufacture and supply of bamboo baskets to the industry was concluded. It is hoped that this will lead to the gradual absorption within the industry of a number of discharged prisoners as trained basket-makers, to the eventually universal adoption of plucking and transportation baskets, and to a consequent elimination of damaged leaf with beneficial results upon the quality of the finished product.

Factories

105. Bois Chéri factory—the largest tea factory in the Colony—completed the first stage of its new expansion programme. Consequent upon this, the factory was able materially to increase its firing resources and a new six-foot endless chain pressure drier was installed. Accommodation for sorting and bulking was enlarged, and a new C.T.C. machine together with additional rollers were laid down, whilst the rolling room was equipped with humidifiers.

106. La Flora factory commenced construction of a new sorting room which will, upon completion, provide greatly improved sorting, bulking, packing and storage facilities whilst at the same time increasing withering space. This factory will shortly be installing a new Marshalls Quality Drier and C.T.C. machine and new sorting machinery is being put down. The rolling room of this factory was equipped with two new rollers and a new green leaf sifter.

107. No significant changes occurred in the Colony's remaining three tea factories. There was a gradual improvement in manufacturing technique during the year, but much remains to be done.

Development Project

108. Gradual inception of the Colony's pilot expansion project proceeded during 1956.

109.—*Mechanical Equipment.* One D4 and two D7 tractors were received during the year together with all necessary ancillary equipment. One D8 model has been delayed in transit at Madagascar but is expected in the near future. Negotiations with the Sugar Planters' Mechanical Pool resulted in an agreement whereby this mechanical equipment for the tea industry was attached to the Pool for maintenance and operation.

110.—*Smallholdings.* Implementation of this part of the Development Project proceeded ahead of schedule and by the end of the year approximately 100 acres of new land to the south of the Midlands Road had been cleared. Of this area some 30 acres had been planted whilst the remainder was being drained and prepared for planting. With the exception of a relatively small area which had been under *Ravenal* palm, the land has cleared well and holds out promise.

111.—*Private lands.* Applications for Government aid to tea development on privately-owned lands materially exceeded availability. Selected applicants did not, in some cases, progress as well as might have been the case had the Tea Division's new tractors arrived earlier in the year. Nevertheless, some 200 acres of new land were broken and much of this was planted up. Progress continues.

112.—*Crown Land Leaseholds.* This major portion of the overall project sustained serious and protracted delay and little progress was achieved. Crown Land originally set aside for development under tea proved upon more detailed reconnaissance to be unsuitable and lengthy negotiations to acquire alternative areas had to be pursued. By the end of the year, satisfactory new land had been agreed upon. Appications for Crown Land leaseholds were numerous and greatly exceeded the area available for development during the next four years. Administrative preparations for settling approved applicants upon the land are now nearing completion and it is hoped that full-scale development will commence in the coming year.

113. *Seed Imports.* Tea seed for use in conjunction with the Development Projects had to be ordered well in advance, and air-freight deliveries to an extent of some 5,510 lb. of seed were received. Quality of consignments varied considerably as between sources and certain deliveries were poor. Delay

in delivery of tea tractors, and the protracted delay encountered over implementing development of Crown Land leaseholds resulted in a lack of outlets for this seed and in a building up of stocks. This difficult situation was aggravated by an unexpectedly heavy crop of seed from the Department's local seed gardens. Viability of tea seed being essentially transient under normal conditions, it became necessary to place substantial stocks in cold storage in order to prevent loss. By the end of the year under review, some 6,500 lb. remained in cold storage—the longest stored having been there for some seven months. Present indications are that this seed has maintained condition and that deterioration has not been significant although germination is somewhat slower than normal unless special measures are adopted. Nevertheless, it has been decided to establish a large nursery at Midlands with a view to utilisation of a large proportion of the longest stored seed without further delay, and this work is now in hand. Plants from this nursery will be employed on smallholdings areas. It is anticipated that with inception of Crown Land leasehold development, balance of stock and new imports should be satisfactorily absorbed although occasional recourse to cold storage will inevitably have to be provided for.

Tea Experimental Station, Wooton

114. No new clearing or planting was undertaken. Routine maintenance and development of existing areas continued. The crop—purchased by Messrs Rampersad Ramdin, Ltd., of La Flora Estate—was low and this was largely attributable to adverse weather conditions during the growing season. An acreage of 49.41 acres was plucked and yielded only 547lb. made tea per acre, but rather more than one third of this area was in its third year from seed and its first year of yield. The new propagation plot of 4 acres adjacent to the office was terraced, drained, and laid out and fencing was erected. This plot is now in use for small-scale propagation of leguminous bush and ground cover plants, shade tree species, and inter-node tea cuttings and it is hoped to expand these activities as rapidly as possible. Despite acute staff shortage, more experimental work was undertaken and certain fertiliser and weedicide trials were commenced—mechanical plucking trials had to be abandoned owing to mechanical defects in the machines employed. Two new tea nurseries were laid out at the extremities of the station with a view to intensive infilling of vacancies. Bending and pegging in a more concentrated form was carried out on two young areas with a view to ascertaining the full potentialities of this method. Layering of half an acre of special Assam strain plants gave satisfactory results. A new building, containing garages, green leaf store and an office, was constructed and the existing office building was enlarged. Water was laid on to the propagation plot. Installation of meteorological instruments was completed and the maintenance of records was commenced.

Midlands Estates

115. No new clearing or planting was carried out and routine development of planted areas continued. The crop—which also went to Messrs Rampersad Ramdin, Ltd.,—was poor,—again largely attributable to climatic factors. Field No. 1, planted in 1952, yielded 682lb made tea per acre and Field No. 2*(a)* and *(b)*, planted in 1953, produced 232lb. Pruning and fertiliser

application on this estate were much delayed. A tea nursery for infillings was laid out close to the estate office. The construction of the main East-West estate road progressed and several culverts were put down. An eight acre tea nursery to accommodate some of the excess seed stored in cold storage was commenced—this operation, although within the Midlands Estate perimeter, is in fact tied to the adjacent smallholdings development scheme. A green leaf store shed was rehabilitated for temporary use and a new overseer's house and twenty new labourers' houses were constructed in concrete blocks. Installation of a main water supply was completed.

Seed bearers

116. Government's seed garden at Parc-aux-Cerfs yielded very well and produced a crop of 10,642lb of good seed from its 9 arpents despite the fact that half the area had been thinned. A number of access roads were constructed on this property. Incidence of *Armillaria mellea* increased as a direct consequence of bad original land clearing. The small seed garden at Midlands yielded a very small initial crop of 965lb. Bushes in the Estate plucking area—rested to develop into temporary seed-bearers—made good growth.

117. A new 12-acre area at Nouvelle Découverte taken over as a new seed-garden site was cleared, terraced, drained and laid out. Wind-breaks were planted and a green crop sown. Seedlings for this new area were to have derived from Betjan variety seed planted in an adjacent Forest Department nursery, but germination was poor and those plants which resulted suffered from a high incidence of die-back.

118. An additional 18-acre seed garden area in the Nouvelle Découverte vicinity is to be commenced shortly.

119. Layered Assam type plants from Wooton were employed to establish a small one-acre trial seed bearer plot at Reduit.

Production

120. Tea production in the Colony amounted to approximately 1,537,595 lb of black tea and 697 lb of green tea. This represents a satisfactory increase of almost 200,000 lb of black tea over the previous year—particularly satisfactory in view of weather conditions during the crop season—and is largely attributable to the maturing of new tea areas. Green tea production is of no economic significance in the Colony and is gradually declining for the present.

PRODUCTION OF THE FIVE FACTORIES DURING THE LAST FIVE YEARS IN ENGLISH LB.

	1952	*1953*	*1954*	*1955*	*1956*
Bois Chéri	400,484	417,558	577,883	634,780	694,319
Corson	257,663	274,922	298,898	317,014	345,444
La Flora	131,828	132,377	160,838	246,832	319,022
Pont Colleville ...	74,673	67,786	71,621	104,657	139,465·7
Nouvelle France	18,702	15,161	33,747	36,743	39,264·5
TOTAL ...	883,350	907,804	1,142,987	1,340,026	1,537,595·2
R. Aubeeluck (Green Tea)	2,542	1,473	1,643	1,822	697

Acreage

121. Acreage under tea is shown below:—

	1956	*1955*
Total arpents	2,790	2,489
Arpents in bearing	2,380	2,017

Yields

122. Overall yield of manufactured tea per bearing arpent was about 646 lbs as compared with 664 lbs in 1955. This interruption to the steady increase in yield over recent years was the result of exceptionally adverse weather conditions during the crop season.

123. Exports:—

Year	*English lb*
1951	89,826
1952	16,035
1953	76,755
1954	249,673
1955	374,217
1956	335,365

124. Exports were consigned to:—

	English lb	
	1956	*1955*
United Kingdom ...	301,728	311,579
South Africa	19,989	13,110
Holland	9,475	34,487
Madagascar	3,069	1,586
Réunion	1,102	6,580
New Zealand	—	6,875
Australia	2	—
TOTAL ...	335,365	374,217

125. Imports (including green tea):—

Year	*English lb.*
1951	47,641
1952	94,822
1953	111,878
1954	36,080
1955	35,076
1956	21,335

126. Imports came from:—

	English lb.	
	1956	*1955*
Ceylon	12,898	28,272
Hong Kong	5,810	5,847
China	2,579	957
United Kingdom	48	—
TOTAL ...	21,335	35,076

XI. Fibre Industry

Prices

127. The progressive deterioration in the economic position of the industry evidenced in recent years has continued, prices being again reduced by a further 10 per cent under the terms of the Tripartite Agreement.

	Price per metric ton		
	1954	*1955*	*1956*
	Rs.	*Rs.*	*Rs.*
First grade brushed fibre ...	1,272	1,145	1,031
Second grade brushed fibre ...	1,240	1,116	1,004

These prices are governed by the agreement (between fibre producers, the Sack Factory and sugar millers) whereby the price of local sacks is adjusted to that of imported sacks, subject to a maximum fluctuation of 10 per cent between successive years. The agreement is due to expire in 1958 and millers have expressed the intention not to renew owing to the fact that, because of the 10 per cent limitation clause, imported sacks are cheaper.

Fibre Production

128. Comparative statistics in regard to the fibre industry are tabulated below:—

			1954	*1955*	*1956*
Factories operating	No.	...	36	30	23
Wild Aloe Fibre	arpents	...	14,603	9,518	9,334
Planted Aloe Fibre	arpents	...	2,521	1,784	1,916
Planted Sisal	arpents	...	625	377	255
Aloe Fibre produced	m. tons	...	1,972	1,652	1,513
Sisal Fibre produced	m. tons	...	7	70	—
Local sales	m. tons fibre	...	1,882	1,593	1,421
Exports	m. tons fibre	...	58	186	98
Value of local sales	Rs.	...	2,247,593	1,765,630	1,406,790
Value of exports, f.o.b.	Rs.	...	25,007	99,565	49,811

129. The further drop in prices has again resulted in a number of factories ceasing to operate.

Sack Factory

130. Figures in regard to the working of the Government Sack Factory are:—

	1954	*1955*	*1956*
Fibre processed, metric tons ...	2,187	2,905	1,521
Bags produced (80 kilos cap.) ...	2,249,222	2,687,369	1,401,143
Filterpress cloth, yards	40,049	64,332	12,442
Other fabrics, yards	4,510	5,658	2,250
Yarn for rope, kilos	15,865	8,404	16,823

131. Carry-over stocks of fibre have been greatly reduced over recent years and the output of the Sack Factory is now approximately at the level of local fibre production. As a result, the Sack Factory worked below capacity throughout the year and with a smaller number of employees than formerly.

132. The Sack Factory (Amendment) Ordinance 1956 made certain changes in the composition of the Board.

General

133. The future of the fibre industry remains doubtful. At present world prices, there is not an economic export market and exports over recent years have consisted only of negligible quantities of tow and cuttings. The local market is dependent upon the Sack Factory and the Tripartite Agreement and it is uncertain whether a new agreement can be negotiated with the sugar millers or even indeed whether developments in regard to bulk loading of sugar may not eliminate the need for sacks, whether local or imported. The Sack Factory has been experimenting with a reinforced type of local bag capable of being used several times for the transport of sugar destined for bulk loading. If the use of this bag proves to be economic, the future of the Sack Factory, and of the fibre industry, will be more assured.

134. Trials with *Urena lobata*, a short term annual yielding a high quality soft fibre, were continued at the Richelieu Experimental Station. Results have been encouraging, but unfortunately it appears that the growing season is such that it is unlikely to fit into the sugar rotation when land is available. A consignment of *Urena* fibre from the Gold Coast was processed at the Sack Factory, the bags being returned to the Gold Coast. *Urena* not only handled more easily than Aloe fibre during process, but produced a better finished article.

135. Work on fibre decortication at Richelieu was discontinued during the year, owing to lack of staff in the Engineering Division.

XII. Tobacco Industry

136. As in previous years, production was limited by the Tobacco Board to the estimated requirements for domestic leaf of the British-American Tobacco Co. (Mauritius) Ltd. There were no exports during the year, but an order has been received for 31,500 kilos of air-cured Amarello (Burley) from the 1957 crop.

Issue of Permits

137. Reduction of the accumulation of manufacturer's stocks enabled the Board to allow production to be increased in 1956. The table below compares the issue of permits with that of the previous year:—

	1955		*1956*	
	Arpents	*Kilos*	*Arpents*	*Kilos*
Flue-cured Amarello	196	170,000	168	145,000
Flue-cured Virginian	228	81,000	419	135,000
Air-cured Amarello	66	51,000	103	90,000
Mauritius—Total	490	302,000	690	370,000
Rodrigues—A. C. Amarello ...	—	1,550	—	200
Total Permits		303,550		370,200

As may be observed from the above, the Tobacco Board has considerably increased the allocation of Virginian in pursuance of its policy of improvement of the quality of domestic tobacco so as to enable it to compete with imports of Virginian cigarettes and leaf tobacco. The larger acreage allocated for tobacco production, 690 arpents as compared with 490 last year, is mainly a reflection of the increased proportion of Virginian with its lower yield per acre.

Production

138. Actual production is shown below, again with last year's figures for purposes of comparison:—

	1955		1956	
	Arpents	*Kilos*	*Arpents*	*Kilos*
Flue-cured Amarello	193	204,828	168	149,658
Flue-cured Virginian	229	88,918	419	162,328
Air-cured Amarello	66	74,317	102	92,619
Mauritius—Total	488	368,064	689	404,605
Rodrigues—A. C. Amarello ...	—	261	—	—
Total Production		368,325		404,605

Over-quota production, at 34,405 kilos, was considerably less than last year's figure of 64,775 kilos. Most of the over-quota, 27,328 kilos, was Virginian, the reason for this being that, whereas the growing season was favourable for Virginian, the yield and quality of Amarello was affected by drought later in the year.

Yields and Returns

139. Yields per acre and financial returns to growers were:—

Average Yield per Arpent:—

	1955 *kilos*	1956 *kilos*
Virginian	388 4	387.2
F. C. Amarello	1,059.2	889.1
A. C. Amarello	1,129.9	912.0

Average Return per Arpent:—

	Rupees	*Rupees*
Virginian	2,014.46	2,166.16
F. C. Amarello	5,171.61	4,219.87
A. C. Amarello	2,594.31	2,225.23

Average Value per kilo of leaf:—

	Rupees	*Rupees*
Virginian	5.19	5.59
F. C. Amarello	4.88	4.75
A. C. Amarello	2.20	2.44

Quality

140. In spite of the bad season for Amarello, the improvement in quality of the crop noted last year was largely maintained:

Percentage of Bright and Medium Grades:—

	1954	*1955*	*1956*
Flue-cured	50	70	69
Air-cured	10	15	16

Local Manufacture

141. The manufacturers' pruchases and usings of domestic and imported leaf are shown below:—

	Kilos Domestic	*Kilos Imported*	*Kilos Total*	*Imported % Total*	*Value per kilo* *Imported C.I.F.*	*Value per kilo* *Domestic*
					Rs. c.	*Rs. c.*
1955 ... Purchases ...	412,691	156,538	569,229	27·5	9.72	4.91
1955 ... Usings ...	420,814	148,873½	569,687½	26·2	—	—
1956 ... Purchases ...	389,559	116,385	505,944	23·0	9.48	5.86
1956 ... Usings ...	417,522	123,495	541,017	22·8	—	—

142. The percentage of imported leaf used in manufacture of local cigarettes has, for the second successive year, shown a drop. The figures for imported leaf percent total leaf used in manufacture during the last three years are:—

1954	*1955*	*1956*
27·2	26·2	22·8

This reduction in the use of imported leaf, to the advantage of domestic leaf, is a result of the Tobacco Board's policy of encouraging the production of better quality Virginian leaf capable of replacing present imports.

143. The comparison of the values of imported and domestic leaf purchased by the manufacturer given above in paragraph 141 is not strictly valid as the imports consist only of Virginian leaf, whereas the domestic purchases include Amarello. The average c.i.f. value of Rs 9.48 for imported Virginian leaf actually compared with Rs 7.34 per kilo for domestic Virginian. The average values of Amarello flue-cured and air-cured purchased by the manufacturer were Rs 5.75 and Rs 3.16 per kilo respectively. Domestic Virginian, blended with imported leaf, is used in the manufacture of the "Embassy" brand of local cigarettes which sells in competition with imported Virginian cigarettes. Amarello leaf, and some of the lower grades of domestic Virginian, are utilized for the cheaper brands, selling below the price range of imported cigarettes.

IMPORTS

144. Imports of unmanufactured leaf and cigarettes for the last two years are tabulated below:—

	1955		*1956*	
	Kilos	*C.I.F. Value*	*Kilos*	*C.I.F. Value*
		Rs.		*Rs.*
Cigarettes ...	77,355	1,372,407	74,262	1,332,540
Leaf—Rhodesia ...	52,280	500,243	68,226	657,451
Leaf—U.S.A. ...	104,258	1,021,674	48,159	446,496
	156,538	1,521,917	116,385	1,103,947
TOTAL ...	233,893	2,894,324	190,647	2,436,487

145. Although a significant part of the imports of Virginian leaf have this year been replaced by local production, there still exists further opportunity for expansion of the local industry through providing a greater part of the manufacturers' requirements for good quality Virginian. It is also evident from the above figures that there is considerable scope for regaining that part of the local market which is held by imported cigarettes. The Tobacco Board has had under urgent consideration the problem of protecting the local industry against extensive importation of cheap brands of Virginian cigarettes and is continuing its policy of encouraging the production of good quality Virginian leaf suitable for replacing part of the present imports of unmanufactured Rhodesian and American leaf.

Exports

146. There were no exports this year, as against one small consignment of 5,879 kilos of air-cured Amarello to the United Kingdom last year. An order for 31,500 kilos of air-cured Amarello has, however, been received for export from the 1957 crop.

147. Prospects of a regular export market remain discouraging. Owing to the small size of the industry and the high cost of production, it is unlikely that, under present conditions, Mauritius can offer Virginian tobacco in quantities or at prices that would interest leaf-merchants. Demand for Amarello type leaf is very limited, although it is probable that occasional small orders for air-cured (Burley) will continue and may even be increased in the immediate future. Even here, however, export is hardly an economic proposition, as such orders are for specific grades and not for the " run-of-the-crop." Nevertheless, for the sake of continuing export connections which may later be of benefit should circumstances change, the Tobacco Board will endeavour to meet all export orders and, for this purpose, is considering the possibility of building up reserve stocks of air-cured leaf.

Crop Conditions

148. Weather was favourable during the growing season of Virginian, but intermittent drought thereafter adversely affected the later-planted Amarello crop. Owing to the drier weather, fungous diseases such as Damping-off, Black Shank and Frog-eye were less prevalent than usual although there was some damage by Mildew and Alternaria. Brown Spot was again severe in the Flacq and Pamplemousses districts towards the end of the season. There was one severe attack of Mosaic in the Black River area.

Tobacco Board

149. Through the courtesy of Messrs. British-American Tobacco Co. Ltd., the services of Mr. D. V. Byles, an expert in the production of leaf tobacco, were made available to the Tobacco Board during the 1956 season. Mr. Byles has furnished a report which contains a number of simple and practical recommendations for improvement of field and barn practices. The suggestions made by Mr. Byles have been approved by the Tobacco Board and passed on to the planters through the Board's inspectors. It is expected that the gradual implementation of these recommendations will result in more economical production and a general improvement in the quality of the crop.

150. At the start of the year, tobacco stocks greatly exceeded warehouse capacity, this being mainly the result of the vacation, at the end of last year, of the Board's former bonded warehouse at Line Barracks, required by the Government for other purposes. In order to make working space for the reception of the 1956 crop and as a means of avoiding heavy capital expenditure on erection of another warehouse, a second floor was installed in the Board's present warehouse. This served its purpose, but the resultant reduction in light and ventilation was doubtless a major factor in the severe intestation with tobacco beetle which occurred during the hot weather

at the end of the year. Steps have been taken to bring the attack under control by the use of insecticides and traps as well as by measures to improve the lighting and ventilation of the warehouse. In the latter connection, expert advice has been sought from the Pest Infestation Laboratory in the United Kingdom.

151. A committee was appointed by the Board to consider the production and marketing of domestic tobacco with special reference to the effect thereon of the rates of Excise and Customs duties on tobacco. The report of this committee is now under examination by the Board.

Tobacco Research Station

152. The Tobacco Research Station, which is partly staffed and financed by the Tobacco Board, is incorporated in the Richelieu and Pamplemousses Experimental Stations of the Department. The Tobacco Research Station continued its work on varietal improvement, seed-bed and cultivation practice, control of pests and diseases, improvement of curing techniques and the production of tested seed for planters. Details are available in the section on tobacco under the Richelieu Experimental Station heading of Chapter XVII of this report.

XIII. Food Crops

153. The following tables have been prepared from data collected by the Agricultural Extension Service: —

	Maize	*Manioc*	*Arouilles*	*Sweet Potatoes*	*Ground Nut*	*Irish Potatoes*	*Rice*	*Total*
Area Harvested (Arpents)								
1955 ...	3,345	504	108	259	546	785	37	5,584
1956 ...	2,405	272	168	191	394	933	—	5,356
Estimated Average Yield (Kilos per Arpent)								
1955 ...	613	4,563	3,629	3,235	1,108	4,048	865	—
1956 ...	602	6,000	4,303	3,500	948	3,200	—	—
Estimated Total Production (Metric Tons)								
1955 ...	2,050	2,300	392	838	605	3,178	32	9,395
1956 ...	1,486	1.642	723	673	380	2,984	—	8,019

The area shown above is effective acreage and includes the aggregate acreages of different crops grown on the same land in one year as well as areas of food crops interplanted in sugarcane.

154. The gradual decrease in the area of food crops is a continuation of the trend of many years past and is a reflection of the increasing diversion of land to sugar and the general reluctance to plant crops which are subject to praedial larceny. It is considered, however, that, in view of the high monetary yield per acre, cultivation of potatoes would assume increasing importance if the problem of seed supply could be solved.

XIV. Livestock

Cattle Census

155. At the instance of the Board of Agriculture, Fisheries and Natural Resources, the Animal Husbandry Extension Service carried out a comprehensive census of the milk cattle population. Detailed information was obtained as to numbers, breed, distribution, sex, age, ownership, number of cow-sheds and many other points. The main results of the census are summarized in the table below:—

	Creole	*Crossbred*	*Total*
Cows (4 to 8 teeth)	8,032	8,525	16,557
All Females	14,559	16,079	30,638
Bulls (2 teeth and over)	—	—	1,487
All Males	2,999	4,402	7,401
Total Milk Cattle	17,558	20,481	38,039

156. In the above tabulation, cattle have been arbitrarily classified as either Crossbred or Creole according to whether or not they exhibit obvious signs of Friesian blood. In that the Creole characters are dominant, many of the animals which are typically Creole in appearance, and have been classified as such, will undoubtedly be, in fact, part Friesian.

157. For comparative purposes, the total figures resulting from the above census are tabulated below with those of previous years:—

	1930	*1940*	*1943*	*1950*	*1956*
Milk Cattle	19,891	17,835	28,620	32,143	38,039
Herd Cattle	6,035	6,434	5,823	5,070	2,225
Draft Cattle	5,943	4,808	5,212	3,069	1,904
Total Cattle Population	31,869	29,077	39,655	40,282	42,168

158. Reduction in the number of herd cattle is the result of several factors, the main ones being the high incidence of tuberculosis, conversion of pasture land to cane-fields and uncertainty as to the future tenure of the Pas Geometriques. Reduction in draft cattle is the reflection of increasing use of mechanical transport for the carriage of the cane crop. Increase in the milk cattle population is due partly to the slaughter restrictions imposed by the Defence (Slaughter of Cattle) Order and partly to the activities of the Animal Husbandry Extension Service. Unfortunately, this increase in cattle numbers has been accompanied by a progressive decrease in availability of fodder, caused by diversion of land to cane cultivation, building and other purposes as well as by increasing use of herbicides in the sugar industry. An already critical nutritional problem is thus becoming rapidly more acute.

Breeding Policy

Milk Cattle

159. The policy of the Department, as approved last year, is to standardize and improve the indigenous Creole Stock by selection within the existing breed, further introduction of European cattle (for use as pure breeds or for controlled cross-breeding) being deferred until such time as this immediate objective is attained. That this policy has not been introduced any too soon is obvious from the Census figures which show that already over half of the total milk cattle population has lost all uniformity and consists of a miscellaneous collection of animals of varying characters.

Herd Cattle

160. Importation of improved breeds of tropical beef-cattle for upgrading the local Zebu-type herd animals cannot be proceeded with until the present high incidence of tuberculosis is brought under control.

PALMAR BREEDING CENTRE

161. The main purpose of this Station is, in conjunction with the Government Dairy, to enable the building-up of a Creole herd of sufficient size to allow improvement of the breed by selection with the aim of supplying progeny-tested bulls for use in the Artificial Insemination Service. In general, the milking herd will be kept at the Dairy and the young stock at Palmar.

162. The Creole herd is being built-up by purchase. Most of the animals thus acquired show considerable malnutrition and it will be some years before the herd will have a majority of animals of departmental breeding and before the effects of the selection programme will be evident. Even at this early stage, however, six of the Palmar cows have given around 600 gallons in 305 days and the remainder of the milking herd are yielding between 400 and 500 gallons. This is a very satisfactory performance for an as yet unimproved tropical breed. It is also interesting to note that five cows which calved just after purchase, and thus afforded no opportunity for improved feeding prior to calving, all gave between 2 and $2\frac{1}{2}$ gallons per day. There appears no doubt that the Creole animal possesses high milk potential and is capable of being developed by selection into a breed with milking capacity fully equal to European breeds in temperate climates. It has also become apparent that the breed is much larger in size than is evident from the peasant-owned animals which have suffered for generations from inadequate feeding. The average weight of the milking herd two years ago was 757 lb per cow; this year it was 904 lb.

163. During the year many of the old buildings, particularly those housing the young stock, were entirely rebuilt and a new feed store was constructed.

164. Besides the Creole milk cattle, the Breeding Station houses a few Ongole cattle, Dorsian sheep and Anglo-Nubian goats. These are used to produce males for sale to stock-owners wishing to up-grade their animals.

GOVERNMENT DAIRY, CUREPIPE

165. The herd, which consisted of a few Friesians and numerous cross-breds, was disposed of during the year to enable modernization of the buildings and equipment, elimination of brucellosis infection and subsequent restocking with Creole Cattle in pursuance of the breeding policy of improvement by selection within the breed. The Dairy was clear of stock by the end of September.

166. It is anticipated that building and reconstruction work will continue until the middle of 1957 and that it will be possible to completely restock with some 90 selected Creole cows by the end of that year.

Artificial Insemination Centre, Reduit

167. This station now houses 10 Creole bulls, 3 of which are progeny-tested and the other 7 are from dams which have averaged between 14 and 16 litres of milk per day in the Palmar herd.

168. The number of bulls is somewhat inadequate in view of the fact that the Centre serves the entire Colony and the bull strength will be increased in the near future as tested bulls become available from the Palmar Breeding Centre.

169. The Centre is accordingly being renovated and enlarged. During the year new offices were constructed for the staff of the Animal Husbandry Extension Service as well as an artificial insemination laboratory and veterinary and general stores.

Animal Husbandry Extension Service

170. The Extension Service was put on a permanent basis by the transfer of the staff to the permanent establishment in the 1956–57 Estimates. Unfortunately, however, the Extension Service was without senior staff for the greater part of the year, the post of Animal Husbandry Officer remaining vacant and the Assistant Animal Husbandry Officer having proceeded on pre-retirement leave early in the year.

171. The Extension Service provided artificial insemination and simple veterinary assistance to cow-keepers throughout the Colony. A total of 6,798 milk cattle were inseminated, of which 1,638 needed re-insemination, making a total of 8,436 inseminations carried out. Some 1,000 pregnancy assessments were done and 465 animals, found to be temporarily sterile owing to cystic ovaries, were given successful enucleation treatment. Nearly 1,000 cases of calcium and phosphorus dificiencies were treated with 75 per cent success, while 4,600 other calls for miscellaneous ailments were attended to.

Animal Diseases

Tubercolosis

172. During the year 1,078 herd cattle and 396 milk cattle were tuberculing tested. Reactors, totalling 7 per cent and 2 per cent respectively were destroyed. The campaign for control of this disease has unfortunately had to be curtailed as the post of Veterinary Officer has remained vacant throughout the year.

Contagious Abortion (Brucellosis)

173. The persistent focus of infection at the Government Dairy, kept under control by S.19 vaccine, was finally eradicated by slaughter and disinfection.

Deficiency Diseases

174. As in previous years, the main diseases affecting milk cattle have been deficiency ailments, particularly rickets. This is likely to continue to be the case so long as fodder is of poor quality and inadequate in supply and so

long as cow-keepers neglect to feed a balanced ration or make use of concentrates. A disease, thought to be due to calcium and phosphorus deficiencies and characterised by soft bones and paralysis, is prevalent towards the end of the cane-crop when beasts have been fed on cane-tops, a singularly deficient feed, for protracted periods. Of the cases treated this year, nearly 1,000 in number, about one-quarter were too advanced to respond to treatment and the animals had to be slaughtered.

Internal Parasites

175. A number of cases of parasitism were encountered, mostly among goats and sheep. Antihelminthic treatment gave satisfactory results.

Poultry Disease

176. *Newcastle Disease* has been kept under control by means of a locally prepared oral vaccine, the demand for which has been growing among the increasing number of poultry breeders. The vaccine has been found to confer solid immunity for over a year.

177. *Fowl-Pox* was also controlled by regular use of vaccine—in this case imported from South Africa.

178. *Coccidiosis* was prevalent among young chicks, but treatment with Nefco not only controlled the spread of the disease but its early application saved 80–90 per cent of affected chicks. The use of this new drug, coupled with better management, is likely to be of great benefit to the growing poultry industry of the Colony.

Quarantine Kennels

179. During the year 17 dogs imported into the Colony underwent the six-month quarantine period at Reduit prescribed by the regulations in force to prevent introduction of rabies.

Slaughterhouse and Meat Inspection

180. Inspection of slaughterhouses was continued throughout the year as well as duties in connection with issue of slaughter permits under the Defence (Slaughter of Cattle) Order, 366 permits being issued for slaughter of females of the milk breed on humanitarian grounds. Lectures on meat inspection were delivered to Sanitary Inspectors of the Health Department.

Importation of Animals

181. Inspection of all animals imported into the Colony was maintained in accordance with the terms of the Animal Diseases Ordinance. The question of animal diseases in Madagascar is causing some concern in connection with the importation of slaughter stock from that territory: the matter is under close observation.

XV. Land Settlement

General

182. The Land Settlement Committee held four meetings during the year. The major item dealt with was the question of the disposal of the houses on the equipped holdings of the various settlements. The Committee's recommendations have been referred to the Central Administration and are still under consideration.

183. The settlements have been administered by the Extension Services of the Department under the direct supervision of an Agricultural Officer detailed for land settlement work.

Pilot Land Settlement Scheme

184. The pilot scheme, comprising the Terre Rouge, Richelieu and Petit Sable settlements, is complete except for the distributory systems for irrigation at Terre Rouge and Richelieu. After initial delays, satisfactory progress has been made with the irrigation works at Terre Rouge which are expected to be finished during the early part of 1957. The works at Richelieu, which will consist in improving the already existing distribution system, have not yet commenced; but plans have been completed and the contract will be put to tender early next year.

Palmar Dairy Small Holding Scheme

185. All capital works have been completed. Approval was obtained during the year to lease an additional acre of sandy land to each of the tenants of bare land holdings for the purpose of vegetable-growing.

Allotment Schemes

186. Approval was received at the end of the year to proceed with the Allotment Schemes for which financial provision had been included in the Capital Expenditure Programme. These schemes will, in fact, be a continuation of the Land Settlement Scheme, now completed and fully tenanted, and involve no change in policy except as regards provision of housing. The project will be proceeded with as soon as funds are available during the latter part of 1957, but the acquisition of suitable agricultural land may be difficult.

Relief Allotment Scheme

187. This scheme, established in 1932 as a relief measure, continued to be administered by the Department. The departmental committee in charge of the allotments met regularly once every month. The number of allottees total 201. Of these, one was evicted for neglecting his plot and four relinquished their plots voluntarily: the vacancies were immediately filled by applicants on the waiting list.

XVI. Extension Services

188. The principle guiding the activities of the Extension Service is the establishment of personal contact with growers by means of visits made to their fields and by evening meetings in the villages. The chief purpose of such contact is not only to advise on agricultural problems but also to bring to the knowledge of farmers the existence of the newly organised Extension Service so that they can derive maximum benefit from the organisation.

189. Completion of recruitment during the early part of the year enabled the Agricultural Extension Service to be deployed throughout the Colony. District headquarters were established, each under the charge of an Assistant Agricultural Officer, and the districts were grouped in pairs under the immediate control of an Agricultural Officer. Liaison with Head Office was maintained by means of weekly meetings with the regional staff and by regular field inspections from the Senior Agricultural Officer in charge of Extension.

190. Provision is made in the Capital Expenditure Programme for the establishment of demonstration plots in all districts and for the construction of district centres which will comprise an office, store, meeting-room and quarters for the officer in charge. Implementation of this programme will be delayed by difficulties in connection with the acquisition of suitable sites, but in the mean time temporary office accommodation has been obtained in all districts through the courtesy of other Government departments and of the Chairmen of local Social Welfare Centres. Pending provision of quarters, it has not yet been possible to arrange for all Extension officers to be resident in their respective districts. Similarly lack of storage and other accommodation for materials and equipment has prevented full development of the facilities which it is intended to provide for small planters.

191. The standard of training and experience amongst the newly recruited officers of the Extension Service has been so variable that it was considered essential to undertake preliminary training of the extension staff. To this end, one day per week throughout the year was devoted to a training programme of lectures and practical demonstrations given by senior officers of the Department of Agriculture. The Registrar of Co-operative Societies also assisted with the training of extension staff.

Extension work

Visits to Plantations

192. Some 7,500 visits were made to farmers all over the island for advice on their particular agricultural problems and to show them by means of demonstrations the advantages to be derived from improved methods of cultivation.

It is most gratifying to record that already a fair number of the leading farmers have adopted improved methods in practice and many more are showing interest in the work carried out for them.

Demonstration Work

193. Some 31 sugarcane variety demonstration plots of the newly released varieties: B. 104/34, M. 147/44 and M. 31/45 were laid out. The purpose of these Demonstration Plots is to show farmers in their own fields the better perfomance of the newly released varieties as compared with the varieties grown by them at present. Planting material for these Demonstration Plots is supplied free. The canes reaped from these plots will not be sent for crushing but will be used as planting material by the owner of the land to the extent of $\frac{1}{3}$ of the available setts, the difference being sold to other farmers of the locality.

194. Nearly 100 Plot Demonstrations on the use of fertilizers on sugarcane, vegetables and other field crops have been conducted during the year. In the great majority of cases the difference in favour of the use of a complete fertilizer treatment was spectacular and created a very strong impression on the farmers. It also often occurs that farmers make wasteful use of fertilizers on certain crops, particularly the brassicas. Demonstrations have been run to show that more economical use of fertilizers can be made while obtaining the same good yields.

195. A large number of demonstrations on the control of pest and diseases have been made on farmers' land. Here again it is gratifying to note that a larger number of farmers are becoming aware of the occurrence of pests and diseases—which in the past they could not detect—and of the means of control available. Their interest has been aroused to the point of their acquiring their own equipment which at the start they were allowed to borrow from the extension service. Many individuals or groups of planters have now acquired their own sprayers which, when not in use, are hired out to others. This practice is gradually developing in the various regions of the island and is, of course, given every encouragement. In this connection, the local District Administration have been very helpful in encouraging Village or District Councils to purchase spraying equipment for issue on lease to farmers of the village at a small fee. This has proved very popular.

Agricultural Meetings

196. About a hundred meetings have been held for farmers in the evenings. On those occasions the main agricultural problems particular to the locality are discussed, results of demonstrations conducted in the area are commented upon and talks on the growing and handling of specific crops are made. Often these talks are illustrated with colour slides made locally which show the proper way to operate and the faults to avoid. Colour slide projections are proving very popular among farmers and provide a valuable and easy means of educaton. Film shows of agricultural interest are also arranged. They are also very popular and have proved quite useful in bringing home to the farmers points on which they were not quite clear.

197. It has been observed that the original versions of the sound films, either French or English, are not fully understood by the local rural population. A short additional commentary has therefore to be made by an Agricultural Officer. An order has been placed for a number of Agricultural films but some already exist in Mauritius at the British Council, the French Consulate and the Indian Commissariat. With the kind permision of these organisations, many interesting film shows have been arranged for the staff, the students of the College of Agriculture and the public generally. Films of great agricultural interest have also been obtained on loan from the Shell film library. Other films of agricultural interest have been borrowed from the Education Department and the Public Relations Office.

198. It is, however, considered that locally produced agricultural films would be of much greater value and serve a better purpose in showing methods or practices more adapted to local conditions and, with that aim in view, cine equipment has been ordered for the Extension Service.

Foliar Diagnosis of Sugarcane

199. This is another important aspect of the duties of the Extension Service. During the period February—April each year much time is devoted to the sampling of planters' sugarcane fields all over the island. This provides a sure means of detecting cases of nutritional deficiency in sugarcane and it is mainly from the results of the analyses that demonstration work on the rational use of chemical fertilizers is being conducted. The results are communicated to the farmers with such advice as appears necessary.

200. In addition to the cases of deficiency in P and K that are discovered by means of foliar diagnosis, numerous other cases are also detected from inspection of the crops in the field. Many cases of P deficiency have thus been observed in the North of the Island, particularly at Arsenal, Massilia, Calebasses, Solitude, Pamplemousses, Piton, Rivière du Rempart and Reunion Maurel. Numerous cases of both Potash and Phosphate deficiencies have been found in almost every other locality of the island.

Occurrence of Pests and Diseases

201. The Extension Service actively helps growers in the detection of pests and diseases attacking their crops and advises them on suitable means of control. The following pests and diseases have been troublesome during the year:—

(a) Red spider. This mite, the attack of which as a mite is generally restricted to tomato crops was this year omnipresent: Beans, potatoes, brinjals, chillies, hibiscus were all severely attacked. Many crops failed totally under attack.

(b) Bean flies. These have been particularly active during the drier periods of the year. Many bean crops have been completely destroyed at the age of 4 to 5 weeks just before the plants reached the bearing stage. An anti-Agromyza campaign was conducted amongst farmers, with spectacular results in numerous cases.

(c) Thrips. The dry conditions which prevailed during the second half of the year were highly favourable to thrips attacks on onion plantations in almost every locality in the island where that crop was grown. Efforts were made to encourage farmers to organise a methodical system of control by the general application of a suitable insecticide. This was not so successful owing to the difficulty in persuading all growers to adopt control measures. As onions are grown in small adjoining individual plots, plots not treated acted as a permanent source of infestation, thus reducing to a great extent the efficiency of the control measures in the treated plots.

(d) Fruit flies. Again due probably to the dry weather conditions, fruit flies of all species have been a real scourge this year. All cucurbitaceous crops and garden fruits like loquats, litchis and peaches were severely attacked. A fair degree of control was obtained on cucurbitaceous crops by the use of lead arsenate. Best control was obtained in plantations where maize plants on which poisoned baits are applied have been inter-grown with the crops. Farmers are always advised to grow a few maize plants, but in the majority of cases advice is only sought when too late. Nor is it always easy to ensure that farmers will follow the advice given to them.

(e) Other Pests:—

(i) *Red ants.* This pest which until last year was a serious problem to many farmers is now easily controlled by means of aldrin, an insecticide recently introduced on the Mauritius market.

(ii) *Mole crickets and crabs* have been very troublesome to seed beds. Efficient control was obtained with " Agrocide 7 " poisoned baits.

(iii) *Wild Parrots.* Maize growing is every year receding before the uncontrolled increase of wild parrots. These are particularly destructive in the south-east of the island. That region which used to produce large maize crops is now producing very little owing to the depredations of these birds. No practical means of control is yet available, whereas absence of cyclonic weather has done much to favour the multiplication of the birds. It has also been observed that wild parrots are spreading into other regions of the island.

(f) Late Blight. This disease has been a major limiting factor to successful potato growing. In the regions of high atmospheric humidity the disease was severe and caused considerable damage. Yields varied from 2 or 3 tons in the humid area to 12 tons in the drier regions. It was observed that the variety *King George* was the best all-rounder in Mauritius owing to the moderate susceptibility it shows to the disease. It is quite responsive to fungicide applications under average climatic conditions—and gives better yields of good table quality potatoes. The variety *" Kennebec "* showed outstanding resistance to late blight, but has not yet established itself as a commercial variety.

Tomato crops also suffered to a large extent from late blight.

(g) Bacterial Wilt was not very prevalent this year. This disease has already in Mauritius a wide range of host plants of widely different species—weeds, vegetables, trees. An addition to the list of host plants has been discovered this year: cabbages grown in Upper Flacq have been found diseased. It is not known whether this has already been reported elsewhere.

(h) Other diseases. A die-back of the litchi tree has been discovered in the Savanne district. Diseased banana stools were also found and forwarded to the Plant Pathologist who diagnosed a fungus disease. Both of these diseases have been observed only in very isolated cases.

Distribution of Sugarcane Planting Material to Planters

202. Under existing arrangements the Extension Service is responsible for the distribution of the newly released cane varieties to planters cultivating under 100 acres, the larger planters being catered for by the Mauritius Sugar Industry Research Institute. The same applies for general extension work

among sugarcane planters. Deviations from these arrangements are made by mutual consent, specially with regard to supply of planting material, when circumstances so require.

203. In spite of the efforts made to meet all demands, it is difficult with the present system of distribution to satisfy all planters, the main reason being that the planting time for the small planters does not tally exactly with that of the larger planters and the sugar estates.

204. Another point of importance regarding the supply of planting material to small planters is that the latter cannot afford to lay-out propagation plots from which they can later obtain their ful requirements. As a rule when a small planter applies for planting material he expects to have the whole quantity he will require for his commercial plantation. Such demands can hardly be met owing to the necessarily limited quantity of planting material available, but every effort is made to provide initial requirements.

Press and Radio Information

205. *Le Mois Agricole.* The monthly publication of gardening notes in the Press was discontinued in August which completed the full cycle of one year originally planned. The substance of these press notices is now being revised with the intention of publishing the material in booklet form.

206. *La Chronique Agricole* is a 15 minutes monthly contribution to the radio programme on agricultural matters. It has been maintained throughout the year and has attracted the attention of quite a range of listeners. In this connection, it may be mentioned that the specialist officers have co-operated with the Extension Service in the presentation of these radio talks. The aim is to provide simple technical information to amateur-gardeners and professionals alike, to awake the interest of indifferent listeners and to bring to the knowledge of the general public in a simple form the various major problems confronting agricultural workers as well as the investigational and developmental work which is being conducted in the country for the benefit of the planting community.

Agricultural Teaching to Primary School Staff and Pupils

207. Progress has been rather slow in regard to school gardens. The matter however, was very carefully studied and a general policy has been drawn up on which complete agreement was reached with the Education Department. It is expected that by the beginning of next year work with schools will have begun all over the island.

208. More positive action was possible with regard to the Teachers' Training College. With the co-operation of the Principal of that Establishment, a course in Agriculture was started there at the beginning of the last term to provide sufficient working experience for a good start to be made the following year. The Agricultural Officer for the Western Section is in charge of the course of lectures in Agriculture at the Training College, where every week-day morning he takes two classes. Practical work is done in the College's own garden under the control of the Agricultural Officer (School Gardens).

Miscellaneous Activities

209. *Vegetable Clubs.* Approaches have been made to the Rose Hill and Quatre Bornes Town Councils, the two local administrative bodies which are the most suitably situated from climatic considerations for starting vegetable clubs. A major difficulty, still unsolved at the time of writing, is the acquisition of a suitable portion of ground within the Town's limits for use as a demonstration plot.

Attempts are being made to institute such clubs in other localities. With the collaboration of the Bambous and the Long Mountain Social Welfare Centres, a variation to the proposed Vegetable Clubs has been tried with a fair degree of success. At these places a Model Kitchen Garden has been created. This is run by the Social Welfare Centres under the guidance of the respective District Extension Officers. These vegetable gardens are serving as useful demonstration plots to the local inhabitants. At the request of the Civil Commissioner (West) the creation of other similar gardens in the Plaines Wilhems and Black River districts is contemplated.

210. *Assessment of Rental value of Crown Lands.* Whenever new Crown Lands are leased for agricultural use, or when existing leases are to be renewed on expiration, the Extension Service assesses the rental value. By this means the intoduction of greater uniformity in the conditions of lease of Crown Lands is attained.

211. *Land Utilisation Map.* A considerable amount of work has been performed by the Extension Service Staff in connection with the checking-up on the spot of the aerial survey maps which are under preparation in England.

212. *Investigation on the suitability of lands for tea growing.* A number of investigations have been made for the Tea Division concerning private lands the owners of which contemplated undertaking the planting of tea as part of the Tea Development Project.

Permanent Demonstration Plots

213. As from July 1956 funds have been available for the purchase of land for two of the eight proposed permanent district demonstration plots. These will be combined with offices, stores, and accommodation for the District Extension Officers as well as the Stock Inspectors. Satisfactory progress has been made to date, but it is not anticipated that the first two sets of buildings will be ready before 1957.

214. The Demonstration Plot at Vacoas is proving useful in that it provides an excellent demonstration ground to the many professional gardeners who operate in the locality and who need advice especially on crop protection and the use of chemical fertilizers. Most of these professional gardeners already have a sound knowledge of the cultivation of the various crops grown by them. Apart, in fact, from the two main considerations abovenamed, they are expert market-gardeners.

215. The Arsenal Demonstration Plot also serves a similar purpose, but during the year it has, in addition, proved very valuable in showing the farmers of the region the great possibilities at low elevations of such crops as cabbages, carrots, leeks and sweet peper which, as a rule, are never grown in these localities.

XVII. Experimental Stations

General

216. The Experimental Stations are intended to investigate the crops, livetock and methods suited to the various areas of the Colony which they serve. The lines along which each Station will develop are hence in some measure determined by the actual results obtained. Although the Stations are still in the course of establishment, the individual character of some of them is already beginning to emerge. Richelieu, which incorporates the Tobacco Research Station and the Fibre Experiment Station, is also showing considerable promise for mixed farming, with the result that grass now occupies the largest acreage and milk cattle have been introduced. Barkly has continued to expand as a centre for seed production and plant propagation to serve the surrounding market-garden areas. Curepipe, on heavy soil in the super-humid zone, has proved particularly suitable for fresh water fish-farming and for production of grass which, in this area, makes impressive dry season growth.

217. Development has of necessity taken precedenc over experiment, but nevertheless there has been progress to report in this latter field. The development phase is now nearing completion and by the end of next year the capital expenditure programme should be largely finished, thus leaving the staff free to devote themselves to experimentation.

Curepipe Experimental Station

1. *Development*

218. A manure platform and shed were constructed to store manure produced at the Government Dairy.

219. Three fish ponds, each between one-half and one acre in extent, were completed as well as a number of small breeding ponds. There are now in use seven production ponds, totalling 6 acres in area, and fifteen smaller breeding and sorting ponds.

220. A duck house was completed in December to accommodate seventy-five ducks required in connection with the fish pond project.

221. A poultry house and a store were commenced in December.

2. *Fish Ponds*

222. Results are reported in Chapter XXII—Fisheries.

3. *Grass*

223. Considerable initial difficulty was encountered in the establishment of planted grass, but it was eventually found that *Setaria sphacelata* was successful if given proper cultivation and adequate fertilizer. There are, however, still some indications of possible minor element deficiencies on this soil type and the matter is under investigation. Growth of *Setaria* has been extremely good during the dry season, a cut of 10 tons per acre being obtained in December from plantings made in August. This grass is being rapidly extended on the Station with the immediate object of supplying as great a proportion as possible of the fodder requirements of the Government Dairy.

4. *Orchard Crops*

224. A number of citrus rootstocks have been under nursery observation to determine their relative suitability to the upland humid zone. Sweet Orange, Mandarin and Java Grapefruit are doing well, while Rough Lemon and Tangelo have failed.

5. *Food Crops*

225. Satisfactory yields of many food crops are now being obtained. Casava, yams, maize and groundnuts have done well when planted at the appropriate season. Cabbages, beans and potatoes are also being grown with fair success. The growing season is from August to February and after the middle of March little growth takes place with any crop. It has been found that the time of planting is of greater importance at Curepipe than at any of the other stations and, to ensure any degree of success, operations must be correctly timed.

Central Experimental Station, Reduit

1. *Development*

226. Considerable development of windbreaks has been effected in order to reduce the adverse effects of the strong winds which prevail at certain times of the year.

227. A petrol store has been provided and an old storehouse of corrugated iron was rebuilt during the year.

2. *Orchard Crops*

228. All the citrus varieties imported from Trinidad in 1955 and 1956 are now well established and budwood has been removed from the grafts for further budding.

229. Acute deficiency symptoms have been discovered in most grafted plants. Investigations showed that these could be cured with a 5 per cent zinc sulphate solution neutralized with lime. All the affected plants have now recovered except for one which was left as a control. Varieties affected were Cleopatra Mandarin, Valencia, Navel and Parson Brown Orange and Marsh Grapefruit. Recovery was in most cases fairly rapid.

230. Further experiments on the nutrition of seedling citrus grown as stocks gave no conclusive results. Trace elements were added to the soil and plants were sprayed with " A.B.C. " fertilizer tablets. No deficiencies and no differences in growth rate between treatments were observed.

231. Bananas have been grown under an intensive system of cultivation, and results have been very encouraging. Each plant is allowed to bear only one fruiting stem at any one time, and adequate spacing and manuring have been provided.

232. A yield of 800 bunches per acre has been obtained with an average of eight hands to the bunch. This gives an estimated return of Rs 2,700 per acre. Bunches still tend to be small by trade standards, but this should improve with time. Proper protection from wind is also essential before further improvement can be obtained.

3. *Grass and fodders*

233. A comparison was made of nine different species of legume grown in combination with four different species of grass.

234. *Ladino* clover, *Stylosanthes* and *Medicago denticulata* can be discounted due to lack of vigour, *Phaseolus lathyroides* established quickly but gave no bulk before flowering, *Centrosema* was slow and gave woody growth. *Glycine javanica* is rather better but growth is slow except in the hottest weather. *Stizolobium* is fairly quickly established but the bulk produced is small.

235. *Dolichos* species gave the most promising results. D. *biflorus* especially produced regular and profuse growth, with good recovery after cutting. *Dolichos sp.* named *lablab* was generally not quite so promising as the *D. biflorus*.

236. Five potential grazing grasses were compared in a trial which was managed to simulate grazing as closely as possible. The five species were:—

(a) Dallis grass *(Paspalum dilatatum)*
(b) Setaria *(S. sphacelata)*
(c) Rhodes grass *(Chloris gayana)*
(d) Molasses grass *(Melinis minutiflora)*
(e) Kikuyu grass *(Pennisetum clandestinum)*
(f) Mixture of all five.

237. During the main growing season Setaria gave the biggest production, but it is interesting to note that Rhodes Grass gave very good yields during the off season from July to October.

238. A trial of four fodder grasses was conducted where each species was grown separately and in a mixture:—

(a) Elephant grass *(Pennisetum purpureum)*
(b) Grande fataque *(Panicum maximum)*
(c) Setaria
(d) Rhodes grass
(e) Mixture of all four.

239. Elephant grass gave the highest yields but establishment was only completed towards the end of the year.

240. A trial on the establishment of *Setaria sphacelata* from seed showed that treatment of the seed prior to sowing with Dieldrin at 10 grm. active ingredient per kilo gave excellent results. Treatment with Arasan showed no significant improvement.

241. Investigations on the yield of leaf from an Acacia hedge showed that the bulk of material comes from the top. Differences in interval between cutting were sown to favour a longer period between cuts.

242. Investigations were started on the cultivation of pineapples.

243. The programme of breeding rust resistant maize has continued. The virulence of the rust appears to have abated considerbaly. Cases have been reported from Reduit where the breeding work has been conducted but little information on resistance obtained. Under these conditions local maize showed equal resistance to the imported strains. Hybrid maize was produced and grown but weather conditions were very dry and satisfactory results were not obtained. Work on the selfing of various strains continues.

244. Trials were carried out on beans, groundnuts, potatoes, yams, cassava and sweet potatoes.

Barkly Experimental Station

245. Considerable advances have been made in the propagation of fruit trees and the production of vegetable seeds, and sales have continued to increase, this year's figure being a new record.

	Rs.	*c.*
Total value of plants sold	15,313	80
Total value of seeds sold	16,928	51
Total ...	32,242	31

1. *Development*

246. The new lands, formerly belonging to the Prisons Department, have been put under cultivation for the first time this year. These were contoured with Acacia and Setaria strips prior to cropping. This system has been very successful and good yields of beans were obtained. Overhead irrigation was supplied to the whole area. A permnaent distribution system is now being installed to carry water under pressure to all parts of the field.

2. *Citrus*

247. The programme for the improvement of citrus growing has progressed, but shortage of budwood has delayed operations this year. From now on there should be no more delays encountered.

248. A minor attack of Canker on Rough Lemon at Barkly has been observed. No other stocks appear to have been affected. Sweet orange has suffered considerably from deficiencies at this station. These may be due to lack of zinc.

3. *Letchis*

249. A new method of propagating letchis, using a polythene wrapper for protecting the moss from dessication has simplified the technique very considerably: watering is eliminated, and roots appear after four to six weeks. The layer is ready for separation in about three months.

4. *Seed Production*

250. The production of seed bearers has been increased very largely but still demand is not satisfied. Control of *Melano agromyza* with Aldrin (see Richelieu Experimental Station) has made large scale bean production a very promising proposition.

251. Apart from this item the usual quantities of all the seed range have been produced.

252. A new drying unit for seed was received from the United Kingdom. This has not yet been operated but should simplify seed production by increasing the speed at which seed can be handled.

5. *Fertilizer Trials on Vegetables*

253. A programme of fertilizer trials was carried out at Pamplemousses, Richelieu, Reduit and Barkly Stations. All plots were under overhead irrigation except where stated and all were $3 \times 3 \times 3$ factorial experiments.

The levels of fertilizer were standardised as follows:—

	Low level	*Medium level Kgs. N./acre*	*High level Kgs. N./acre*
N ...	0	15	30
P ...	0	20	40
K ...	0	30	60

254. The results are summarisel below:—

Location	*Variety*	*Results*	*Average yield / acre of best treatment*
Barkly	Cabbage 10 tons / acre F.Y.M.	High Nitrogen* significant	28·4 tons
Réduit	Squash 10 tons / acre F.Y.M.	High Phosphate† significant	3,888 kgs.
Richelieu	Tomato 10 tons / acre F.Y M.	No significant differences ...	15,378 kgs.
Réduit	Carrot 10 tons / acre F.Y.M.	Medium Nitrogen† significant	14 tons
Richelieu	Brede malabar 5 tons / acre F.Y.M.	High Nitrogen* significant	18·8 tons
Richelieu	Brede martin 10 tons / acre F.Y.M.	Medium and High Nitrogen* significant	7·6 tons
Richelieu	French bean	High Nitrogen† and High* and Medium† Phosphate significant	1,000 lbs. (dried beans)
Richelieu (Flood irrigation)	Potatoes (King George) 30 tons / acre F.Y,M.	Medium Nitrogen† and High Phosphate* significant	6·36 tons
Richelieu	Carrot	High Nitrogen* and High Phosphate* significant	15·3 tons
Richelieu	Garlic 10 tons / acre F.Y.M.	High Nitrogen† significant	2·06 tons
Pamplemousses (Hand watering)	Garlic 15 tons / acre F.Y.M.	High Nitrogen† and Medium Phosphate† significant	1·57 tons
Richelieu	Onions 10 tons / acre F.Y.M.	High Nitrogen† significant	4·4 tons
Pamplemousses (Hand watering)	Onions 15 tons / acre F.Y.M.	No significant differences ...	4·3 tons

255. Nearly all of these experiments show nitrogen to give significant increases and many show response to phosphate but in no case was a response to potash recorded. This is interesting when th range of soil types included in the trials is taken into account.

256. These trials were designed to be of an exploratory nature only hence the standardized fertilizer dressing and the wide spread in quantities of fertilizer applied. In cases where it was considered likely to be a limiting factor farmyard manure was applied as a basic dressing. In such cases the presence of farmyard manure is so indicated.

Richelieu Experimental Station

257. On June the 13th and 14th an Agricultural show was held at this Station. On the first day an attempt was made to demonstrate recent improvements in Tobacco cultivation. The use of insecticides, on seed-beds, the care of leaf during harvest and the use of steam in curing were items of interest. Apart from the actual demonstrations in the field an exhibition was put on under cover. This embraced other activities of the Division including the Extension Services, Seed Production and Fish Farming. The Maize Mill and Plant Pathology Division also supplied exhibits.

258. On the second day a more varied programme was offered with the accent on mechanized farming. The mechanical cultivation of maize, potatoes, grass and acacia were all demonstrated. A demonstration of silage making, using maize specially grown for the purpose, was also given.

1. *Development*

259. Quarters were provided for an Overseer by converting a new labourers' camp of two units into a single house.

260. A cowshed and dairy of modern design were erected during the year. An implement shed and labourers' mess were incorporated in the same building. The cowshed is designed to accommodate sixteen cows, but by the end of the year only six stalls had been occupied. Steam sterilization for all utensils is provided.

261. The construction of a tower silo measuring 10 feet in diameter by 20 feet in height was started in October.

2. *Tobacco*

(including Pamplemousses Experimental Station)

262.—*(a) Seed beds.* Experimental work was concentrated to a large extent on the improvement of seed-bed techniques and in this field considerable progress was achieved.

263. A trial was run to investigate the effect of various seed-bed covers. These consisted of:—

(a) grey calico
(b) straw applied during germination only
(c) no cover.

264. Results were not well defined as red ants were a limiting factor in seedling stand. Agrocide 7 was used for red ant control. There is some indication that *(a)* and *(b)* were slightly better than *(c)*. The experiment was repeated and *(a)* gave slightly better results than *(b)* and *(c)*.

265. Experiments on rates of sowing suffered a similar fate due to the effect of red ants.

266. Much more spectacular was the use of Aldrin for the control of this pest which had previously been the limiting factor in all seed bed experiments.

Various rates of Aldrin were applied to sowings of Amarello, these were:—

45 grams Aldrin 40 in 2 gallons of water applied to 100 square feet
22 grams Aldrin 40 in 2 gallons of water applied to 100 square feet
11 grams Aldrin 40 in 2 gallons of water applied to 100 square feet
5½ grams Aldrin 40 in 2 gallons of water applied to 100 square feet
5½ grams Aldrin 40, applied mixed with the seed.

All beds were sown at the rate of 1 grm. seed per 100 square feet.

CONTROL OF RED ANTS WAS COMPLETE AT THE LOWEST RATE OF APPLICATION

267. A further experiment (No 32) was then designed to test the rates of sowing tobacco seed with different levels of Aldrin 40.

The variety Bonanza was used.

Seed Rates	*Rates of Aldrin*
(i) ¼ gram per 100 square feet	(*a*) 5 grams Aldrin 40
(ii) ½ gram per 100 square feet	(*b*) 3 grams Aldrin 40
(iii) ¾ gram per 100 square feet	(*c*) 2 grams Aldrin 40
(iv) 1 gram per 100 square feet.	(*d*) As seed dressing
	(*e*) Agrocide 7 at 1 gram / square feet and along bed perimeter.

The results indicate that the optimum rate of sowing is ½ gram of seed, with either 2, 3 or 5 grms. of Aldrin, applied per 100 square feet of surface. This gives approximately 2″ × 2″ per plant which is considered the most desirable seed-bed spacing. The heavier seed rates give a stand which is rather too dense. This encourages weakly plants and fungous diseases develop to a greater extent.

268. The insecticide Endrin applied to young plants gave variable results in the control of cut-worms.

269. Seed bed techniques can thus be summarised:—

(a) Application of Cheshunt compound at 150 grms. in 10 gallons of water per 100 square feet to control soil borne fungous diseases.

(b) Farmyard manure mulch applied at 5 cubic feet per bed. 500 grms. of 10: 28: 4 tobacco fertilizer applied to mulch.

(c) 1 c.c. of tobacco seed sown.

(d) 3·5 grms. of Aldrin 40, in 2 gallons of water.

(e) Spray with lead arsenate to control leaf cutting insects.

(f) Spray with Perenox to control fungous diseases.

(g) The advantage of seed bed covers is still problematical.

270.—*(b) Fields.* In the fields varietal collections were sown. These included new introductions, such as Harrison Special and Cokers 139, several of which appear to have promise.

271. Fields of Amarello, and flue-cured Virginian varieties were planted for seed production purposes.

272. Much work was expended on the mechanical preparation of fields and also the subsequent mechanical inter-row cultivation.

273. The most effective labour saving device has been the use of the Massey-Harris seed/fertilizer drill for marking and fertilizer application. This speeds up planting to a very great extent.

274. Inter-row cultivation was possible for about 4–6 weeks after planting with a Massey-Harris spring tine cultivator attached to a Ferguson tractor. Two cultivations could profitably be carried out before the plants become too large.

275. Ridging was carried out mechanically with 2 ridger bodies mounted on a Ferguson tractor.

276. As field trials have for many years been carried out without obtaining any satisfactory results, it was decided to carry out a full-scale uniformity trial at Pamplemousses in order to try to assess the necessary statistical limitations of this type of work. Height of plants, weight of green and cured leaf and degree of infection by Black Shank and Nematode were all to be assessed.

277. The real difficulties of this type of work were amply demonstrated when, due to a very wet season, the incidence of *Alternaria* leaf spot was so high as to render the whole trial meaningless.

278.—*(c) Curing.* Experiments with steam curing were continued: at the beginning of the season a small boiler of 30 lbs steam per hour evaporative capacity was used. This was of some help in the yellowing of the leaf, which could be carried out at 95°F—110°F with a 90—100 per cent relative humidity. This enabled fairly good cures to be obtained although the leaf was quite heavily spotted.

279. Very late in the season a larger boiler (evaporative capacity: 500 lbs steam per hour) was installed along with a "steam curing unit" from Rhodesia.

280. Only a ton of over-ripe Amarello leaf was available and this was cured in 36 hours. The unit appears to be rather large for the small-sized barn used at Richelieu.

281. Two barns of new design were completed at Pamplemousses Experimental Station. These barns have a recirculatory air system which gives greater economy in fuel. Basalt-cement blocks were used in place of dressed basalt stone and a slab roof was employed instead of the standard corrugated iron. A grading room of similar materials was constructed for handling the leaf.

282.—*(d) Production of cured leaf:—*

	Kgs.	*Value*	*Kgs/acre*
		Rs.	
Flue cured Amarello	2,614·0	9,626.50 3·68/kg.	953·5
Flue cured Virginia	1,571·7	6,580.15 3·90/kg.	320

The low figures are largely due to the high incidence of leaf spot. Much green leaf had to be discarded in the field as unusable.

283.—*(e) Use of Herbicides on Tobacco.* In co-operation with the Botaist of the Mauritius Sugar Industry Research Institute, a trial was laid out to test the effect on tobacco of M C P A, M C P B and D C P B, at 2 lbs and 3 lbs acid equivalent per acre. These treatments were combined with two times of application.

3. *Grass and Fodder*

284. Fodder production has been largely confined to *Setaria sphacelata* approximately twelve acres of which have been planted. Maize has also been grown fairly extensively for silage.

285. A field of 1·8 acres was planted with maize in January 1956 for silage making. It was harvested in the milk-stage three months after sowing. 13,600 kgs per acre were obtained: this was mechanically chopped and blown into one of the older tower silos. 18 inches of Elephant grass and 1 foot of dry soil were used as a seal.

286. The fermentation was acid light brown, when the silos was opened in August. It proved very palatable to the stock at the Government Dairy at Curepipe. Wastage at the sides was small and only in the top 3 feet.

287. It has now been established that good quality silage can be produced and so far a tower silo of solid construction has been the only practicable method.

288. Trials on the growing of Acacia, *Leucaena glauca*, as a cultivated field crop are giving interesting results.

289. Other fodders such as Sorghum, Sunflower, and a range of grasses are under trial.

4. *Sugarcane*

290. Planting material from about 2 acres was sold to growers. This consisted of the varieties M. 31/45, M. 147/44 and Barbados varieties.

291. 510·76 tons of cane were harvested from sixteen acres and sent to Medine Sugar Factory. A mean yield of 32 tons per acre was thus achieved.

292. Two and a half acres were planted with the varieties M. 112/34, M. 134/32, M. 147/44 and the Barbados varieties. These fields will be reserved for sale to growers.

5. *Rice*

293. One acre of land was put into terraces and sown to rice under flooding irrigation on 13th January. The crop was harvested on the 9th of May. A yield of approximately 2,000 pounds per acre was achieved. The amount of water required was rather excessive.

6. *Potatoes*

294. Two trials were carried out on potatoes at Richelieu Station. The first one was a repetition of the trial carried out the previous year to determine the optimum levels of fertilizer treatment. This had shown good responses to nitrogen and phosphate. There was no response to potash.

295. In 1956 the results showed a significant response to 40lbs per acre of phosphoric acid but little response to nitrogen. This difference is probably accounted for by the rather different conditions of watering employed. In 1955 the water was applied by Sigmund rainer and in 1956 by furrow irrigation. Thus the response to nitrogen would only be shown with adequate watering. Where water is limiting a greater response to phosphate is obtained.

296. A second tial was intended to determine the optimum size of planting material. Three treatments were employed.

(a) whole seed
(b) half seed
(c) quarter seed

There appears to be a slight trend in yield from whole seed giving the greatest return to ¼ seed the smallest, but the actual results were not significant.

7. *Beans*

297. A field at Richelieu was devoted to a full scale trial on the mechanical cultivation of dwarf beans. The field was ploughed and harrowed and a good tilth obtained. Seed of Pioneer bean was then planted with a Massey-Harris peanut planter and fertilizer distributor. Apart from two rows when the fertilizer distributor became blocked the planting was well done and very regular germination obtained.

298. Four days after germination the whole field was sprayed with Dieldrin at the rate of 1 litre Dieldrin 30 per cent in 40 gallons of water per acre. The object was to control *Melano agromyza phaseoli*, which is capable of great damage. Control achieved was extremely good and percentage infestation for the crop was virtually nil.

299. Inter-row cultivation and ridging were carried out satisfactorily with the Ferguson tractor and appropriate implements.

300. The rows which did not receive fertilizer at planting time were given an equivalent dressing by hand one week later but in spite of this they remained poor throughout the growing period. It would thus appear essential to apply fertilizer (in this case 10: 28: 14 tobacco mixture) prior to planting.

301. A yield of 1,028 lbs dried beans per acre was obtained after threshing with a Garvie " Hand and Foot " thresher. This can be considered a very successful trial and one which will be expanded in future years.

8. *Fibres*

302.—*(a) Jute Substitutes.* Trials on the time of planting and yield of fibre were carried out from November 1955 to March 1956, on *Urena lobata*, Kenaf and Roselle. The first plantings were made on 8th November 1955 and subsequent plantings at fortnightly intervals. This was rather a dry year and it was necessary to use irrigation water for the early part of the growing season.

303. Different spacings were also tried in order to estimate the effect of this factor. Subsequent work has shown that the spacings of 12", 18" and 24" employed were all too great and a 6" maximum can be profitably employed.

304. All three crops were shown to give a photoperiodic response as expected, and planting after the 1st January will be a failure as flowering starts before the fibre is mature.

305. Cutting of the 1st, 2nd and 3rd sowings was carried out on 23rd and 24th February, 1956. The first planted plots having had a growing period of 120 days.

306. A comparison of samples taken from all three species gave a fibre content as follows:—

Kenaf	...	...	4·72
Roselle	...	...	5·24
Urena	...	...	5·65

307. Only in the case of Urena were the whole plots retted, in this case the overall percentage of fibre came out at 8·44. This gives a total fibre yield of 1,570 lbs per acre. This compares to a figure of 3,000 lbs for Kenaf under good conditions (not obtained in Mauritius).

308. The later sown plots were harvested in May but they had all failed to make satisfactory growth.

309. All plots were harvested mechanically by means of a Ferguson tractor and cutter bar. Retting and stripping are very simple to carry out, but if ribbons only could be retted the process would be much simplified.

310. Comparing the three fibres Urena appears to be the most satisfactory for Mauritius, as both Roselle and Kenaf appear to suffer from root diseases and leaf cutting insects to a considerable extent. The incidence on *Urena lobata* is negligible. The quality of Urena is comparable to jute in fineness, softness and lustre. It has better spinning qualities then Kenaf and Roselle due to greater flexibility. The finished fabric is not however quite equal to jute.

311. The following conclusions concerning *Urena lobata* were reached at the end of these trials:—

(i) Planting must be done before the New Year
(ii) Yields were medium but should be capable of much improvement
(iii) Cheaper harvest than Aloe
(iv) Quick financial returns.

312. Further trials were started in November, 1956 in order to simplify the growing technique and improve fibre yields. These trials are still in the field but certain points have been established.

313. The simplest and cheapest method of sowing is to broadcast and then lightly cover with a disc harrow. At Richelieu and Central Experiment Station the rains have been more regular in 1956 than 1955 and very satisfastory growth has been achieved. No cultivations were necessary as a very quick ground cover was obtained. Yield figures are not available at this time but there is every indication of last year's figures being exceeded.

314.—*(b) Aloe Fibre.* It has not been possible to persue any experimental work on Aloe fibre *(Furcraea gigantea)*.

9. *Mechanisation*

315. The use of mechanised equipment was greatly extended during the year. Some operations, such as land preparation, the drilling and cultivation of seeded crops, ridging for potatoes and spraying of row crops has been

shown to be practicable and economical. Other problems such as the satisfactory harvesting of grass and fodder crops have not been capable of complete mechanization so far, but the difficulties have been clearly defined—these are due largely to the adaptation of temperate equipment to tropical requirements.

316. The pick-up baler purchased for the Hay-Making Scheme at Plaisance has been put to good use at Richelieu for baling cane trash, rice straw, etc., for litter. This saves a tremendous amount of handling and simplified the work in the cowsheds.

317. The purchase of a Caldwell " Brushcutter " from the U.S.A. has enabled vegetation control to be achieved in many different types of work. Used at Curepipe it has been invaluable for clearing secondary growth. At Richelieu it has been used very effectively on maize and tobacco residues, which normally are difficult to remove. A very good chopping effect is produced, leaving the material cut up into small pieces which can readily be ploughed under. Good work has also been done by this machine in the control of weeds in grass and acacia fields. It is also intended for use in orchard areas when these have been established.

Royal Botanic Gardens, Pamplemousses

318. The main event of the year was the visit of Her Royal Highness the Princess Margaret, who planted a tree, *Lagestroemia speciosa*, at the corner of Princess Margaret Avenue and Pope Hennessy Avenue. The tree has grown extremely well. In preparation for the visit the main roads were surfaced by the Public Works Department and this has added considerably to the amenities of the Gardens.

319. Further capital works were carried out during the year. A potting shed of superior design and a shaded nursery now fill a long felt need and have enabled propagation of plants to proceed more rapidly.

320. A further unit of the labourers' camp was completed.

Pamplemousses Experimental Station

321. Most of the work carried out at this Station has been described elsewhere for convenience.

322. On the whole, a rather wet year was experienced especially during the tobacco season, and production was below the normal quality.

Plaisance Airport

323. The acreage under grass and Acacia has been considerably increased and now totals:—

22 acres Setaria
8 ,, Elephant grass
16 ,, Acacia.

324. As production has been considerably in excess of demand, various methods of cheap conservation have been tried.

1. *Silage*

325. A clamp silo of Setaria was attempted in the field, but satisfactory covering proved very difficult and rain water ruined the ensiled material.

326. A stack silo of Setaria and Elephant grass was tried under the cover of an old aeroplane hangar. This was built in April and opened in October. In this case, the material had dried out progressively from the outside and the majority had gone mouldy.

327. These two silos amply illustrate the difficulties of such silage making in tropical conditions. It is considered that at present the tower silo is the only type that can be accepted with assurance.

2. *Grass Drying and Hay-Making*

328. The grass drying plant at Plaisance was tried for barn hay drying with little success. The length of time required for drying enabled moulds to gain access. The final product was not palatable. This equipment has been removed to the Government Dairy at Curepipe for further trials.

3. *Acacia*

329. Throughout the year Acacia has been dried in the open air at Plaisance on the concrete road-way.

330. It appears to be very important to keep the cut material dry as any rain after cutting rapidly blackens the leaf.

331. Apart from this, it is comparatively simple to produce a sample of high quality material. During the year three and a half tons of dried acacia leaf were produced.

332. Costings showed that one metric ton of dried leaf cost Rs 49.20. The crude protein was 30.7 per cent and crude fibre 14.1 per cent both on a dry matter basis. The moisture content was 9.7 per cent of the air dry weight.

333. This method is very easy to carry out and further attempts will be made to improve the process by carrying it out under cover. This method of preserving fodder is one of the most promising so far developed.

XVIII. Plant Pathology Division

Sugarcane

334. The Mauritius Sugar Industry Research Institute having taken over research work on sugarcane, the following is abstracted from the Introduction to the Report of the Institute for 1956:—

> " . . . Several cases of smut were recorded on B.37161 in the sub-humid zone; " pokkah-boeng " was seasonally common on M.31/45, M.147/44, Ebene 1/37 and B.37161, but did not cause serious damage; several cases of toprot brought about by this disease, however, were observed on M.31/45. Mild attacks of red stripe occurred on the Barbados varieties cultivated commercially. Growth failure of M.134/32 due to root disease was fairly common in some localities. Poor growth associated with ratoon stunting disease was again observed on M.134/32 in regions of high rainfall; symptoms of the disease were seen on the white and striped sports of M.134/32. Both B.3337 and B.37172 apear to be susceptible to the virus, while Ebene 1/37 is proving more resistant so far. Observations made on chlorotic streak in field trials indicate the following susceptibility ratings of commercial varieties: M.147/44, Ebene 1/37 and B.37172 are highly susceptible; M.134/32 and B.3337 susceptible; M.31/45, B.34104 and B. 37161 are moderately susceptible."

Eucalyptus

335. Gummosis was encountered on *E. tereticornis* and *E. citriodora* in some plantations. It is characterised by a copious exudation of dark-coloured gum at places on the stem, drying out into hard resinous masses. A wide-gaping longitudinal splitting of the bark is often present, with the crack more or less filled with the dried gum. At irregular places beneath the bark, sometimes even in regions where the latter is apparently sound, a sheet of black gum, of alveolate structure, is observed.

336. In cross section, the gum sheet forms a black line about 1/16 inch thick, in the cambial region, extending for varying distances around the stem. Sometimes, similar strips occur deep seated in the wood, apparently indicating old lesions which failed to develop extensively. Death of the tree follows cases of severe attack.

337. On one young, newly dead plant a species of *Diplodia* was observed on the bark. The fungus was isolated and inoculations into young plants resulted only in localised lesions, from which the fungus was reisolated. The indications were that the fungus was only a secondary parasite.

338. Trials to isolate a pathogen from newly diseased parts of the bark and of the outer wood failed, and the cause of the disease remains unknown.

Bananas

339. A bad outbreak of Panama wilt occurred on the Gingeli banana (Lady's finger) on an estate at Calebasses. The disease was also observed in a plot at the Central Experiment Station, Reduit on some plants of the following varieties: Gingeli, Ducasse hybrid, Ollier and Philibert.

340. Another disease was reported killing plants of the Cavendish variety at l'Exil in Savanne district on land by the sides of a river cleared from forest growth about three years previously. The specimens received showed the pathogen to be a basidiomycete, but no fructifications were obtained for its identification.

Coffee

341. Rust caused by *Hemileia vastatrix* was found parasitised by a species of Verticillium probably *V. Hemileiae* Bourriquet on plants at Curepipe.

342. Other diseases observed were anthracnose *(Colletotrichum coffeanum)* and brown eye spot, associated with a species of Cercospora.

Tea

343. Young plants, also at Curepipe, were seen attacked by the gemma-fungus disease, resulting in leaf spotting and defoliation. Measurements of the gemmae indicated that the fungus was probably the same as that reported by T. B. Wallace in Tanganyika (E. African Agric. Jour. XIV, 3, 141-143, 1949). A similar disease had previously been observed at Curepipe, causing severe defoliation of loquat plants (Ann. Report 1949, p. 69).

Cabbage

344. A virus-like disease causing thickening and curling of the leaves was observed on some plants at Arsenal Demonstration plot in Pamplemousses. Downy mildew caused by *Peronospora parasitica* was also observed on the mature leaves of tall plants in the same plot.

345. A wilt of young cabbage plants, which has not apparently been reported elsewhere, occurred in a field at Pont Bon Dieu in Flacq district. In the early stages, the wilting affected the basal leaves, whereas in later stages, complete wilting occurred, with large patches of tissue drying out between the larger veins.

346. A white, rather clear, exudate was produced from the bundles of the cut stem and small cavities were present in the pith. A species of Phytomonas was isolated in culture which, inoculated into a number of young cabbage plants, failed to produce general infection, although there was localised blackenning of the cortex and vascular bundles in the inoculated region in a number of cases.

Miscellaneous Diseases

347. *On Maize.* Rust, caused by *Puccinia polysora* Und. was not severe this year, although a bad attack occurred in a few fields.

348. *On Tobacco.—(a)* Chlorosis in seed beds in Flacq district was attributed to iron deficiency.

(b) One case of leaf curl was encountered in a field in Pamplemousses.

(c) Early blight, caused by *Cercospora longipus* was severe in many plantations in Flacq and Pamplemousses.

(d) An attack of mosaic of the enation type occurred in a field in Black River resulting in severe distortion and reduction in size of the leaf. The source of the infection could not be determined.

349. *On Onion.* A severe attack of black mould caused by *Macrosporium parasiticum* was observed at Arsenal Demonstration plot in spite of sprayings effected with Perenox.

350. *On Yam.* Tuber rot by *Rhizopus nigricans* and by *Sclerotium rolfsii* was observed in a market shop at Souillac.

351. *On Vicia faba* zinnia, dahlia, and *Tropaeolum* wilt caused by *Pseudomonas solanacearun.*

352. *On Statice.* Collar rot by *Sclerotium rolfsii.*

353. *On Swiss Chard.* Leaf spot caused by *Cercospora* sp.

354. *On Mango.* Severe attack of inflorescences by mildew *(Oidium mangiferae)* in Beau Bassin.

355. *On Lettuce.* Bottom rot or Rhizoctonia disease *(Corticium solani)* at Rose Hill.

356. *On Schizanthus.* 1. Stem and collar rot, of bacterial origin.
2. Blight, caused by a species of *Phytophthora.*

357. *On Casuarina tenuissima.* death of trunk and branches caused by *Corticium salmonicolor.*

358. *On Dwarf beans.* Specimens of bean plants received from Rodrigues island in December were seen affected by halo blight caused by *Pseudomonas medicaginis* var. *Phaseolicola.*

Trials with Agrimycin—100

359. Preliminary experiments were conducted with Agrimycin 100 on potato and tomato with the view of determining the possibility of the use of the antibiotic for the field control of bacterial wilt caused by *Pseudomonas solanacearum* (Smith).

360. The antibiotic was applied as weekly sprays at concentrations of 50 and 100 p.p.m. of streptomycin on potato and 100 p.p.m. on tomato.

361. In the case of the potato trial, no wilt developed even in the control rows, although the land was supposed to have been contaminated.

362. As regards the experiment on tomato, the severe drought experienced in October and November killed most of the plants, preventing final counts to be made. The experiment indicated, however, that at the concentration used, the antibiotic had had no effect in preventing infection by *P. solanacearum*.

Plant inspection at the Customs and Airport

363. The control of the importation of plants and plant parts continued as usual.

Legislation

364. Proclamations were issued during the year prohibiting the importation of citrus plants or plant parts into Mauritius and the exportation of maize to any of the Dependencies, other than Rodrigues and Agalega. The object of the former prohibition is to prevent the introduction of new strains of virus disease and of the latter to safeguard those Dependencies not yet affected by Maize Rust.

Miscellaneous

365. A series of five talks on diseases of plants and their control was delivered during the year to the junior officers of the Agricultural Extension Service by the Plant Pathologist.

366. A talk on Fiji disease of the sugarcane was also delivered by the same officer at a meeting of the Heads of Division and senior officers of the Department of Agriculture.

XIX. Entomology

367. The work of the Entomology Division was seriously reduced from the middle of the year onwards owing to staff shortages, only the Associate Entomologist and one Scientific Assistant being at post.

Sugarcane pests

(a) The White Grub, Clemora Smithi *(Arr.)*

368. Recrudescence of this cane pest was reported in various localities. A larval survey revealed infestation as high as 94,000 grubs per arpent. The parasitic scoliid wasps—*Campsomeris* spp.—were very scarce in many infested centres. The rarity of these parasites was in all cases found to coincide with scarcity of the food plant, *Eupatorium pallescens*. Many of the weed killers now in use on Estates have no doubt had a detrimental effect on the growth of food plants which formerly were very common in the field.

369. Experiments with Aldrin 25 per cent wettable powder and 30 per cent miscible oil and chlordane powder and emulsion were initiated by the Entomologist before his departure on overseas leave; these experiments were subsequently handed over to the Sugar Industry Research Institute for continuation and control.

(b) The Spotted Borer. Proceras sacchariphagus *Boj.*

370. The drought experienced during the early months of the year favoured severe attack by the spotted borer in many of the lowland localities. The new variety M.31/45 was in virgin plants heavily infested and many of the plants died prematurely through the intense borer attacks. Searches were made for the Carribbean parasites imported years ago but no recovery was reported.

(c) Leaf Hoppers

371. The biology and bionomics of *Perkinsiella saccharicida* Kirk, and *Dicranotropis muiri* Kirkaldy have been fully studied by the Entomologist. His work shows that neither delphacid causes any apparent direct injury to cane growth in Mauritius. Natural enemies are numerous and are considered primarily responsible for the low population level of these leaf hoppers.

372. Seven species of parasites of both *P. saccharicida* and *D. muiri* are recorded in Mauritius. A paper on this subject will be published in the near future.

373. To further the natural check of *Perkinsiella saccharicida* Kirk, the known vector of Fiji disease which for the time being does not exist in Mauritius, the well known and effective predator, *Cyrtorhinus mundulus* Bred. has been imported from Hawaii through the courtesy of Dr. Fred A. Bianchi, Senior Entomologist of the Experiment Station of the Hawaiian Sugar Producers' Association. Four consignments were received between March and September. A total of 1727 young nymphs were received alive and liberated in the first instance in maize fields infested wth *Peregrimus maidis*—a delphacid readily attached by this predator—with a view to the building up of colonising centres where *Cyrtorhinus* could subsequently be obtained for liberation in the cane fields. A first generation of adults was recovered at one breeding locality two months after the first liberation; since then, however, no other recovery of adults has been recorded.

GENERAL

(a) Pests of Pigeon Pea (Cajanus cajan)

374. As a continuation of the work on the biological control of *Etiella zincknella* Tr. and *Maruca testulalis* Gey. two major pests of the pigeon pea, further consignments of parasites were received by air from the Commonwealth Institute of Biological Control. Thirteen consignments of *Chelonus buscklella* Vier., a parasite of the above insects, were received during the period 31st May to 9th August. A total of 1496 adult parasites were obtained out of 2579 cocoons sent. The *Microbracon* sp. recovered from *Etiella* in 1954 was fairly abundant during the year.

(b) Fruit Flies

375. Severe attacks of various *Ceratitis* species were reported on fruits of loquat and peach. These fruits were 100 per cent infested. The parasite *Eucoila* sp. was very rare. In presence of the recrudescence of these fruit flies which may become a threat to the fruit production of the island, steps are being taken to introduce other parasites from Hawaii.

(c) The Giant Snail. Achatina fulica Ferrssac

376. To further the control of this pest of vegetables and other economic crops, the introduction of the Indian glow-worm *Lamprophorus tenebrosus* Walker has been started with the co-operation of Dr. Fernando, Senior Entomologist of the Department of Agriculture, Ceylon. A first air mail consignment of larvae was received late in December. Seventy one live individuals have been liberated in the field. Other consignments are expected in the forthcoming months.

(d) Mites

377. A comprehensive study by the Associate Entomologist of the Phytophagous Acarina and their predators in Mauritius has been nearly completed for publication. It results from this work that 27 species are recorded for the first time in Mauritius, amongst which the most important are: *Eutetranychus banksi* (McGregor); *Oligonychus biharensis* Hirst; *Oligonychus coffeae* (Nietner); *Tetranychus cucurbitae* Rahman and Punjab; *Tetranychus piersei* (McGregor); *Tetranychus* sp. (tumidus group); *Brevipalpus phoenicis* (Geiyskes); *Typhlodromus (Amblyseius) ovalis* Evans; *Thyphlodromus (Amblyseius) caudatus* Berl., *Phyllocoptruta oleivora* Ashm; *Calcarus carinatus* Green.

MISCELLANEOUS

378. The scoliid wasp, *Scolia ruficornis,* imported in 1951 from Zanzibar via Mauritius to Diego Garcia Island to check the coconut beetle *Oryctes rhinoceros*, has been recovered early in 1956 in that Island. It is hoped that this parasite will soon effectively help in the biological control of this beetle.

379. Two consignments comprising a total of 2.000 *Chilocorus nigritus* and 150 *Scymnus* sp. were sent to Diego Garcia with a view to checking the various Diaspid scales on coconut and other crops in the Island.

380. In accordance with the arrangement for agricultural co-operation between Mauritius and Réunion, for consignments of *Apanteles sesamiae* Cam., a parasite of *Sesamia calamistis* Hamps were sent to Réunion Island. A total of 171 batches of cocoons, equivalent to about 10,775 adults, were despatched by air.

381. Lectures in agricultural entomology were delivered at the College of Agriculture by the Entomologist until June and by the Acting Entomologist during the remaining part of the year. A series of lectures on insect pests of agricultural importance and their control were also delivered by the Associate Entomologist to officers of the Agricultural Extension Service.

XX. Agricultural Chemistry

MODIFICATIONS

382. When the Sugar Technology Division closed down at the end of 1955 as a result of the service being transferred to the Mauritius Sugar Industry Research Institute, the Agricultural Chemistry Division took over responsibility for the analysis of sugar, molasses and alcohol.

383. Plans have been made for the modification and reorganisation of the laboratory with new equipment and new electrical apparatus. The necessary equipment and apparatus are being ordered.

Activities

384. Periodical visits are being paid by the Chemist to experiment Stations where cooperation with the Chemistry Division is more particularly needed. These visits will be intensified in the future in order to ensure the fullest coordination between the Chemistry and other Divisions.

Analyses

385. During the year, 310 samples were analysed, involving 721 determinations. Of these, 192 samples involving 336 determinations were routine analyses and 118 samples involving 385 determinations were for research.

(a) Soils

386. One hundred samples of soils were analysed for the following purposes:—

(i) Chemical and mechanical analyses for determining their suitability for tea production.

(ii) Determination of pH relative to tea cultivation, mushroom growing and sugarcane growing respectively.

(iii) The moisture content relative to road building.

(b) Fertilizers

387. About 50 samples of simple and compound fertilizers, including phosphatic guano, were analysed for their content of nitrogen, phosphoric acid and potash.

(c) Water

388. Boiler feed water was analysed for certain sugar estates. One sample from Solitude S.E. was found to be extremely hard, containing a high percentage of silica (about 47 p.p.m.). It is interesting to note that the optimum content of silica in a water for moderate pressure boilers should be in the region of 12 p.p.m.

389. Fish pond water was analysed periodically for its pH. A large number of samples were forwarded by the Agricultural Division. The average figure found (about 6·5) would be the optimum pH for fish farming.

(d) Foodstuffs

390.—(i) *General.* Samples of various feeding stuffs were forwarded for analysis by the Maize Mill, the Agricultural Division and the Livestock Division. Rations for various purposes and types of livestock are mixed at the Maize Mill according to the figures prepared by the Livestock Division. The Chemistry Division analyses the different products from which the rations are blended, and also sometimes the rations themselves after preparation. Comparative figures for the present grade of Cow Meal, Calf Meal and Chicken Meal are shown in Table I.

391.—(ii) *Silage.* Silage making with grasses and specially cultivated fodder species being a recent development in the Island, the analysis of the silage prepared at the Experiment Stations is of particular interest. The results obtained from one sample of acacia *(Leucaena glauca)* and molasses silage forwarded by the Agricultural Division are shown in Table II.

(e) Miscellaneous

392. A large number of miscellaneous analyses were performed. These included:—

(i) Sugar and sugar products, comprising:—

Molasses for export analysed for brix, sucrose and reducing sugars;

Molasses for aconitic acid content. This was found to be 0.17 per cent, the figure approximating that for Trinidad molasses;

White sugar for sulphur dioxide;

Alcohol for export. 36,000 litres of alcohol (94° G.L.) were shipped to Hong Kong on result of analysis.

(ii) Tappings from Carribbean pine, which were found to contain:—

	%
Turpentine ...	13·5
Rosine ...	74·7
Waste ...	11·8

(iii) *Makak* wood from which a casket was made to be offered to Her Royal Highness the Princess Margaret was tested for its moisture content.

(iv) Samples of sand from the Public Works Department for complete analysis. The average content of calcium carbonate in the sand was found to be 93 per cent.

TABLE I

	Cow Meal	*Calf Meal*	*Chicken Meal*
Moisture %	14·0	12·2	15·6
Ash %	5·9	7·8	9·4
Fibre %	8·2	11·5	17·8
Ether extract %	3·0	5·5	2·1
Crude Proteins %	10·4	19·9	9·8
Carbohydrates %	58·5	43·1	45·3

TABLE II

ACACIA AND MOLASSES SILAGE

Moisture %	71·0
Ash % d.m.	11·18
Total proteins % d.m.	24·56
Ether extract % d.m.	2·30
Crude fibre % d.m.	23·94
Soluble carbohydrates % d.m.	38·02
True proteins % d.m.	23·81
Volatile organic acids (expressed as acetic acid) % d.m. ...	0·72
Non-volatile organic acids (expressed as lactic acid) % d.m.	5·12
Amino acids (expressed as crude proteins) % d.m. ...	0·75
Volatile bases (expressed as crude proteins) % d.m. ...	2·19

XXI. Agricultural Engineering

GENERAL

393. With the transfer in January to the Sugar Research Institute of responsibility for work with sugar technology, the opportunity was taken to effect a preliminary reorganisation of the Engineering Division with the aim of shifting the emphasis from sugar technology to agricultural engineering. The Sugar Technologist and Assistant Sugar Technologist were transferred to other posts and the Chemical Engineer continued work with fibre decortication until his departure around the middle of the year to study agricultural engineering in the United Kingdom. Thereafter, except for the operation of the Maize Mill

NOTE: d.m. = dry matter.

and Yeast Factory, the Engineering Division was temporarily closed down pending resumption of duty by the Agricultural Engineer and recruitment of an Assistant Agricultural Engineer. Before leaving to acquire the training for appointment as Agricultural Engineer, the Chemical Engineer completed work on a new type of automatic decorticator feeding device for use with aloe fibre and also built a prototype brush-cutter of the rolling type.

Richelieu Maize Mill and Yeast Factory

Manufacture of Animal Feeding-Stuffs

394. The Maize Mill continued the manufacture of special rations for poultry, chicks, pigs, cows, bulls, calves and horses as well as the production of ureated molasses. For these purposes a variety of materials, such as wheat bran, maize, poonac, molasses, fish meal, oats, bone meal, cod liver oil, dried milk, aureomycin and minerals, were purchased.

395. During the year a total of 951 tons of animal feeds were manufactured and 966 tons were sold. Demand for the Maize Mill products over recent years has been increasing slowly, but is still relatively small in regard to the animal population of the island.

396. In order to make these feeds more easily available to the public, an extension shop was opened in Rose Hill on the 23rd January. By the end of the year this shop had sold 300 tons of various stock-feeds to a total value of a little over Rs 155,000. It is intended to extend this scheme to the proposed district centres of the Agricultural Extension Service as and when they are completed.

Manufacture of Yeast Tablets

397. A total of 12,840,000 tablets were manufactured from imported South African Yeast. Sales to Government departments totalled 12,565,500 and the remaining 274,500 tablets were bought by the public.

Manufacturing Accounts

398. Statements of account are provided at Appendix D.

XXII. Fisheries

Marine Fisheries

399. The marine fisheries are the subject of a separate Annual Report issued by the Fisheries Division of the Department of Agriculture to which reference may be made for information concerning statistical data and the work of the Division in enforcement of conservation measures and assisting the welfare of the fishing Community.

400. The organization and policy of the Fisheries Division have been under review by the Fisheries Advisory Committee of the Board of Agriculture, Fisheries and Natural Resources. The Board has not yet, however, submitted a report to the Government.

401. A survey of potential fishing banks within a twenty mile radius of Mauritius was commenced in July by the Board of Agriculture, Fisheries and Natural Resources, using the Government tug " Le Maurice " fitted with an echo sounder. The survey was temporarily discontinued in September after exploration on the western side of the island had been completed without discovery of any banks.

Fresh Water Fisheries

402. Investigation of the possibilities of pond culture of fresh water fish, commenced by the Agricultural Division during the latter part of last year, was continued on the experimental stations with encouraging results.

403. Growth of the three species of Tilapia imported from East Africa, *T. melanopleura, T. nilotica* and *T. macrochir,* was very satisfactory. In the case of *T. nilotica,* one specimen reached a pound and a half in fifteen months. However, no breeding had taken place by March among the *T. nilotica* and only on a very small scale among the *T. macrochir.* It was decided to tarnsfer some fish of each species to Richelieu Experiment Station and the Royal Botanic Gardens, Pamplemousses in order to investigate the possibilities of stimulating breeding with the higher temperatures prevailing in the lower districts. This did not succeed in either case and fish of both species started breeding in all localities in October–November, when 15 to 16 months old.

404. By June sufficient fry of *T. melanopleura* were available for stocking three of the Curepipe ponds at a sufficiently high rate for investigational purposes. A trial was therefore run to determine the rate of growth of the population with the addition of three different dressings of lime or manure. In December, the ponds were drained, the fish removed and weighed. The fish so obtained were offered for sale to the public.

405. If the figures obtained from the results of this trial are converted into pounds per acre per annum, the following yields can be assumed:—

(1) Control – no fertilizer treatment ... ... 268 lbs/acre/annum
(2) Super + lime ... ... 456 lbs/acre/annum
(3) Super + lime + farmyard manure ... 748 lbs/acre/annum

All ponds had a small initial dressing of farmyard manure.

406. This can be considered fairly satisfactory for an initial trial, especially during the winter season. Work at present in progress indicates that feeding grass, and other material, may be much more profitable with this species than adding fertilizer.

407. During the course of this trial, monthly water temperatures were recorded. These indicated that breeding does not begin until the water temperature has reached 68°F. (20°C.).

408. In October work was started on three additional ponds at Curepipe Station. These are now being used to obtain preliminary data on the performance of *T. nilotica* and *T. macrochir* under " production " conditions. A further pond is devoted to a mixture of all three species. Seven production ponds totalling in all six acres are now in use and 15 breeding ponds of various sizes have also been constructed.

409. A trial was also initiated in the ponds at Five-Ways to investigate the effects of the addition of fertilizers and lime. No definite results were obtainable from this series due to the difficulty of supervision, intensive poaching and a tendency for the fish to produce large numbers but remain small in size. The trial is now being repeated.

410. Work now in progress is as follows:—

(a) Investigation of feeding habits of all 3 species;

(b) Feeding trial (with chopped grass) on *T. melanopleura* + ducks;

(c) Comparison of production of:—

(1) *T. melanopleura*

(2) *T. nilotica*

(3) *T. macrochir*

(4) The three species together under the best conditions of fertilization available.

411. Considerable progress has been made in evaluating the practical aspects of fish culture.

412. Pond design is of primary importance for ease of removing the crop. The outlets should be sufficiently large to drain the pond quickly and the fish should be taken in a small screened " fishery " on the outlet side. Considerable difficulties have been encountered with screens covering the outlet pipe on the pond side. Drainage is almost impossible due to the clogging of the screen.

413. Water flow through the pond should be reduced to a minimum in order to obtain maximum benefit from manures and fertilizers. This may be difficult to achieve in the high rainfall areas unless the site of the pond is carefully chosen.

414. There is no doubt that the siting of cow-shed on the pond banks would help to increase the quantity of fish. So far, this has not been possible and the only other livestock incorporated into the scheme has been a flock of ducks. These are thriving and it is hoped to increase the flock considerably in due course.

415. The prices obtained for the *T. melanopleura* sold by auction at Curepipe Station were disappointing:—

Grade I	(over 250 grams each approx.)	90 cts.	per lb.
Grade II	(,, 100 ,,)	55	,,
Grade III	(,, 50 ,,)	30	,,
Grade IV	(,, 25 ,,)	30	,,
Grade V	(under 25 ,,)	15	,,

416. These prices were considerably increased for the retail purchaser. In the case of Grade V fish, 50 cents per pound was being asked by one merchant.

417. Approximately 5,000 fry have been distributed to interested parties

XXIII. Rodrigues

418. The Five Year Agricultural Development Plan for Rodrigues, which has been briefly described in the first chapter of this Report, was initiated during the latter part of the year after release of funds in the 1956–57 Estimates. Excellent progress has been made and a large measure of co-operation has been received in spite of the fact that a scheme of this nature, involving as it does drastic redistribution of land and a complete re-orientation of the agricultural system, must inevitably cause considerable temporary inconvenience to the majority of the population.

419. The position at the end of the year in regard to the major projects under the Plan is given below under the appropriate headings.

Experimental and Demonstration Plots

420. The aim of establishing a demonstration unit farm in each district of the agricultrural uplands has been nearly achieved. Out of a target of 10 such farms, 9 have been fully completed and the 10th is nearing completion. All of the completed two-acre farms have been provided with step-dams, contour-drains and bunds, and have been tie-ridged and fully planted. These farms have also been provided with houses for the employed farmers and accommodation for livestock and have been equipped with livestock, tools and fertilizers. Livestock on the 9 completed demonstration farms at the end of the year totalled 15 donkeys, 2 mules, 3 horses, 14 cows, 25 pigs, 6 sheep and 8 goats.

421. The demonstration plots which have been completed are situated at Citronelle, Trois Soleils, Pt. Brûlé, Palissades Ternel, Lataniers, Pt. Gabriel, Papayes, La Ferme and Citron. The tenth, at Port Sud Est Road, is not yet completed.

Fruit Tree Planting

422. A start has been made in the La Ferme—Baie Topaze area with the project to plant windbreaks on all ridges and crests. These consist of mangoes spaced at 24 feet interplanted with filaos or eucalyptus at 6 feet and vetivert or acacia at 3 feet. Some 8,000 mango and 20,000 filao and eucalyptus seedlings have been planted out and another 10,000 mango seedlings prepared in pots for planting.

Livestock Breeding Centres

423. The first of the proposed Breeding Centres for supplying livestock to the new upland farms has been erected at Baie Topaze and stocked, while the building material for two other centres at Oyster Bay and St. Gabriel has been assembled.

Livestock and Horses

424. Cows, goats, horses and pigs have been purchased to stock the Demonstration Plots and the Baie Topaze Breeding Centre. The purchases included horses from Agalega for riding and draught purposes and pure-bred Berkshire sows and boars imported direct from Australia for grading-up the Rodrigues stock. These imported pigs are of excellent type and are thriving under local conditions. Arrangements are in hand for the early introduction of Creole milk cattle, Anglo-Nubian goats and Dorsian sheep from Mauritius.

Swamp Rice Schemes

425. A total of 32 acres of bunded rice land has been prepared and leased in plots of $\frac{1}{8}$ acre:—

Block	*No. of Plots*
Grand Brule	10
Nassola	16
St. d'or	16
Riviere Banane	68
Mangue	35
Citron	50
Limon	20
Reposoir	19
Baie Malgache	23
TOTAL ...	257

426. Swamp rice is an entirely new crop to Rodrigues and the initial yields, of the order of 5,400 lbs of hulled rice per acre in two annual crops, have been most satisfactory. The Department undertakes the hulling of the tenants' paddy and has installed a small mill for this purpose. The plots are in great demand and it is hoped to extend the scheme to all suitable river valleys with the objects of making Rodrigues as self-sufficient in rice as possible and providing a valuable stock-feed component in the form of rice bran.

Soil and Water Conservation

427. 300 acres were protected by means of contour drains and step-dams leased to tenants in 2-acre unit farms as under:—

Farm block	*No. of Unit Farms prepared*	
Palissades Ternel	24	
Nassola	13	
Grand Brule	16	
Mt. Goyave	21	
Trois Soleils	6	
Chateau d'Eau	6	
Papayes	36	
Citron	20	
La Ferme	8	
TOTAL ...	150	*Farms of two acres each*

Survey of Crown Lands

428. The 150 farms so far completed have been measured out in plots of roughly two acres, the boundary stones placed and the boundaries demarcated with lines of vetivert. About 100 acres have been accurately surveyed and mapped.

Machinery and Equipment

429. A rice huller has been installed at La Ferme. A grounnut oil expeller and dairy equipment have been ordered—the former will be sited at Oyster Bay as part of the drive to encourage cultivation of groundnuts for the production of edible oil for human consumption and groundnut cake for stock-feeding, the latter is for the Breeding Centres.

Staff Housing

430. Quarters have been built at Grande Montagne to accommodate the Assistant Agricultural Officer in charge of the eastern half of the island.

Fishery Survey

431. The pinnace of the Fisheries Division sent to Rodrigues at the end of last year for investigation of the possibilities of developing off-shore fisheries outside the lagoon remained in Rodrigues for the entire year and, at the end of April, was supplemented by a second pinnace sent to speed up the survey. Detailed results of the exploratory work done by these two vessels are available in the annual report of the Fisheries Officer, but the following salient points may be mentioned here. Certain adverse factors became apparent notably the hazard of fishing an off-shore shelf of about 250 square miles exposed to the

South-east Trades and devoid of shelter, dangerous passes in the reefs and, owing to the small size of the island, difficulty in determining position at sea by marks on shore. It was also found that pelagic fish were insufficient in number to afford productive trolling. Nevertheless, bottom fishing indicated that yields of the same order as obtained in Mauritius, about 10–12 tons per year per boat, were possible. As the wholesale price of fish in Rodrigues is about one-third of that in Mauritius and the cost of fuel and equipment higher, the Fisheries Officer concluded that deep-sea fishing by motor-vessels would not be economic, although there were possibilities for sailing craft with outboard auxiliaries. Actual results from bottom-fishing were 7,682 kilos caught by the pinnace " Astrid " in 93 days and 3,088 kilos by the pinnace " Marina " in 62 days. The latter craft arrived after the better part of the season had passed. Both pinnaces were under the charge of an officer of the Fisheries Division posted from Mauritius and were manned by local crews working on a share basis.

XXIV. Lesser Dependencies

432. Owing to the occurrence of Maize Rust in Agalega, the prohibition on export of maize to that island was lifted, although maintained in respect of the other dependencies where the disease has not yet been reported.

433. The project regarding cotton production in Agalega, referred to in the last Annual Report, has not been pursued.

434. Copra production for the year ended 30th September was slightly higher in both Diego and Agalega than in the previous year. Owing however, to a further fall in price, the value of the crop was about the same.

	Metric tons copra produced	
	Diego	*Agalega*
Period 1.10.54 to 30.9.55 ...	1,253	406
Period 1.10.55 to 30.9.56 ...	1,370	436

Except for 200 tons sold in the United Kingdom, the whole of the above output was used in Mauritius for manufacture of edible oil and soap. The coconut plantations were extended in Diego by about 125 arpents.

435. No departmental officer was able to visit these dependencies during the year.

XXV. General

Honours

436. Mr. G. A. North Coombes, Deputy Director of Agriculture, was appointed an officer of the Most Excellent Order of the British Empire in the New Year Honours.

Visits

437. The Department was honoured on the 1st October by the visit of Her Royal Highness The Princess Margaret to the Royal Botanic Gardens at Pamplemousses. Her Royal Highness planted a tree in commemoration of her visit and graciously consented to one of the avenues being named after her.

438. Overseas visitors during the year including the following:—

Mr. J. Sellschop of the South African Department of Agriculture, in April;

Mr. Collet of the London Office of the British-American Tobacco Co. Ltd.;

Mr. D. V. Byles, leaf expert of the British-American Tobacco Co., who paid an advisory visit during June and July;

M. Janet, Directeur adjoint du Génie Rural, Paris who visited water conservation works from the 13th to 17th June at the request of the Directeur des Services Agricoles of Réunion;

M. Léon-Durand, Chef du Service des Départements d'Outre-mer in the French Ministry of Agriculture, in July;

Miss Rittner, Liaison Officer for Mauritian students, in July;

Colonel Magill of Messrs Albert E. Reed & Co., who conducted enquiries into the possibilities of producing bagasse pulp for export;

M. Guy Durand of the French Ministry of Economics, in December;

Dr. Hass of the Sugar Research Foundation, New York, in December.

439. His Excellency the Governor inspected the Artificial Insemination Centre, the Palmar Breeding Centre and the Government Dairy on the 14th March and the Richelieu, Barkly and Curepipe experimental stations on the 16th July. His Excellency the officer Administering the Government inspected the Artificial Insemination Centre, the Palmar Breeding Centre and the Government Dairy on the 28th November, while the acting Colonial Secretary visited the Artificial Insemination Centre, the Maize Mill, and the Richelieu and Barkly experimental stations on the 27th December.

Missions

440. The Entomologist attended the Ninth Congress of the International Society of Sugar Cane Technologists, which was held in India during January. The Senior Agricultural Officer in charge of the Agricultural Division visited Rodrigues in April in connection with grassland problems. The Senior Agricultural Officer, Rodrigues attended the Second Meeting of the East African Regional Committee for the Conservation and Utilization of the Soil, held at Dodoma, Tanganyika from the 28th June to the 11th July, and then spent three days visiting tea development areas in East Africa. The Fisheries Officer attended a conference on oceanography held between the 15th and 20th October at Nossi-Bé, Madagascar under the auspices of the Conseil Scientifique Africain. The Director of Agriculture led the Mauritius delegation to the annual conference of the Comité de Collaboration Agricole Maurice-Réunion-Madagascar, held in Madagascar between the 19th and 24th November.

Miscellaneous

441. Open days were held on the Richelieu Experimental Station on the 13th and 14th June. The new buildings of the College of Agriculture were opened on the 29th November and those of the dairy at Richelieu Experimental Station on the 21st December. The Sugar Research Institute is still being provided with departmental accommodation and the resultant shortage of space at Head Office is a limiting factor in the work of the Chemistry and veterinary laboratories.

A. Staff

(As at 31st December)

Administrative Division

Director of Agriculture	M. N. Lucie-Smith, M.A., B.Sc., Agr. (Lond.), Dip. Agr. (Wye), D.I.C.T.A. (T'dad)
Deputy Directors	G. A. North Coombes, *O.B.E.*, B.Sc. Agr. (Read.), Dip. Agr. Maur.)
	R. Avice, A.R.T.C. (Glas.), Dp. Agr. (Maur.)

Agricultural Division

Senior Agricultural Officer	L. Johnson, B.Ss. Hons. (Leeds)
	R. C. Anslow, M.Ss. (Read.), B.Sc., Hons. (Dunelm.)
	A. D'Emmerez, *M.B.E.*, Dip. Agr. (Maur.)

In addition there are:—

1 Agronomist
1 Horticulturist
8 Agricultural Officers
13 Assistant Agricultural Officers (1 vacant)
1 Surveyor
1 Assistant Surveyor
7 Overseers Grade I
6 Overseers Grade II

Agricultural Chemistry Division

Chemist	S. Belcourt, B.Sc., Dip. Agr. Sc. (Wales), Dip. Agr. (Maur.)

In addition there are:—

1 Assistant Chemist
1 Scientific Assistant

Plant Pathology Division

Plant Pathologist	G. Orian, *M.B.E.*, (Temporary)

In addition there are:—

1 Assistant Plant Pathologist (on study leave)
1 Plant Inspector
1 Scientific Assistant

Central Board Division

Registrar	S. Staub, A.R.T.C. (Glas.), A.M.I. Mech. E., F.C.S., Dip. Agr. (Maur.)
Assistant Registrar and Chief Chemist	P. J. Galea, Dip. Agr. (Maur.)
Accountant	Vacant

In addition there are:—

1 Assistant Accountant
1 Assistant Chemist
1 Investigational Officer and Weighbridge Inspector
3 Senior Test Chemists (1 vacant)
23 Test Chemists (crop only)
22 Samplers (crop only)

Agricultural College Division

Principal	J. R. Lagesse, B.Sc. (Lond.)
Lecturers	A. Rouillard, M.S. (Louis.), Dip. Agr. (Maur.)
	R. Latilupe, B.Sc. (Lond.)
	1 vacant

In addition there are:—

3 Assistant Lecturers (1 vacant)

Engineering Division

Agricultural Engineer	E. Limfat, B.Sc. (Lond.), A.C.G.I., A.M.I., Chem. E., (on study leave)

In addition there are:—

1 Assistant Agricultural Engineer (vacant)
1 Scientific Assistant
1 Supervisor, Yeast Factory and Maize Mill

Entomological Division

Entomologist	J. R. Williams, M.Sc., B.Sc. Hons (Bristol), D.I.C., F.R.E.S.
Associate Entomologist	L. A. Moutia, Dip. Agr. (Maur.), F.R.E.S.

In addition there are:—

1 Assistant Entomologist (on study leave)
3 Scientific Assistants (2 vacant)

Livestock Division

Senior Veterinary Officer ... ... A. Darné, F.R.C.V.S., Dip. Agr. (Maur.)
Veterinary Officer ... ... vacant
Animal Husbandry Officer ... ... vacant
In addition there are:—

1 Scientific Assistant
2 Senior Stock Inspectors (1 vacant)
11 Stock Inspectors (2 on study leave)
1 Temporary Stock Inspector
1 Supervisor
1 Overseer
15 Livestock Assistants

Tea Division

Tea Officer ... ... R. B. J. Deane
Assistant Tea Officers ... ... D. N. Andrews
J. W. Partridge
In addition there are:—

1 Agricultural Officer
2 Assistant Agricultural Officers
1 Manager, Midlands Estate
5 Overseers Grade II

Rodrigues Division

Senior Agricultural Officer ... ... P. L. Hotchin, B.Sc., Agr. (Leeds) D.T.A., (T'dad.)
In addition there are:—

1 Agricultural Officer
2 Assistant Agricultural Officers
1 Overseer Grade I
2 Overseers Grade II

Fisheries Division

Fisheries Officer ... ... J. de B. Baissac, Dip. Agr. (Maur.)
In addition there are:—

1 Chief Inspector
3 Inspectors
3 Sub-Inspectors
16 Head Guards
36 Guards

Executive and Clerical Staff

Chief Executive Officer ... ... I. Félix
In addition there are:—

2 Senior Eexcutive Officers
3 Executive Officers
2 First Grade Clerks
13 Second Grade Clerks
3 Typist-Stenographers

Mr. R. Avice, Deputy Director of Agriculture, is due to proceed on pre-retirement leave directly after the end of the year.

Mr. S. Belcourt, formerly a senior Test Chemist, returned to the Colony after completion of a four-year Colonial Development and Welfare scholarship in agricultural chemistry at the University College of North Wales and assumed duty on promotion as Chemist with effect from the 24th July. The post of Chemist had been vacant since the retirement of the previous holder on the 31st December, 1955.

Mr. L. Orieux, Assistant Plant Pathologist, was granted a year's study-leave for the purpose of taking a postgraduate course in plant pathology at the Imperial College, London, preparatory to promotion to the post of Plant Pathologist. Mr. Orieux left the Colony during the middle of the year and, in the mean time, the post of Plant Pathologist is being temporarily filled by the retired former holder Mr. G. Orian, M.B.E.

Mr. S. Staub was appointed to the vacant post of Registrar, Central Board as from the 1st January. His former post of Sugar Technologist was subsequently abolished as part of the reorganization of the Engineering Division.

Mr. J. R. Sadler, Accountant of the Central Board proceeded on leave in February and subsequently declined to renew his contract. Attempts to recruit a replacement have been unsuccessful.

Mr. R. Thelemaque was transferred from Assistant Sugar Technologist to Assistant Lecturer in Sugar Technology at the Agricultural College and subsequently to Assistant Chemist, Central Board.

The posts of Lecturer in Agricultural and Assistant Lecturer in Sugar Technology at the Agricultural College continue vacant, although the latter was filled for a brief period during the year by transfer from another division. In regard to the former post, repeated advertisement over a number of years has failed to attract a qualified candidate.

Consequent on the transfer to the Sugar Research Institute of responsibility for research in sugar technology, the establishment of the Engineering Division was reorganized in the 1956–57 Estimates so as to allow the Divsion to undertake general agricultural engineerng. The posts of Sugar Technologist, Chemical Engineer, Assistant Sugar Technologist and Assitant Chemical Engineer were abolished and replaced by posts of Agricultural Engineer and Assistant Agricultural Engineer. At the same time, the number of posts of Scientific Assistant in the Division were reduced from two to one. Mr. E. Limfat, the former Chemical Engineer, was granted two years study-leave and entered the University of Durham in October to follow a course leading to the M.Sc. degree in Agricultural Engineering. This course is intended to equip him for the duties of the new post of Agricultural Engineer. Approval has also been obtained for the grant next year of study leave to another officer of the Department to enable him to obtain the National Diploma in Agricultural Engineering preparatory to appointment as Assistant Agricultural Engineer.

Mr. R. Mamet, Assistant Entomologist, was transferred to the Health Department in March. He was replaced in October by Mr. A. J. E. Orian, a former Education Officer, who was then granted a year's study-leave at the Imperial College, London, for the purpose of taking the postgraduate Diploma in entomology.

The posts of Veterinary Officer and Animal Husbandry Officer in the Livestock Division continued vacant throughout the year while the Senior Stock Inspector (formerly Assistant Animal Husbandry Officer) proceeded on pre-retirement leave in the early part of the year. The Division was further depleted by the absence of two Stock Inspectors on study-leave—Mr. C. Delaître, who is in his fourth year of degree study in animal husbandry at Massey Agricultural College, New Zealand on a Colonial Development and Welfare Scholarship, and Mr. Clifford Gassin who entered Harper Adams Agricultural College in October to follow a two-year course leading to the National Diploma in Poultry Husbandry.

The Tea Division was strengthened by the appointment of Mr. J. W. Partridge as Assistant Tea Officer in November and Messrs L. A. Baissac and S. Mooroogan as Agricultural Officer and Assistant Agricultural Officer respectively in Dececmber.

The Department has been short-staffed during the year, particularly in the livestock, Agricultural College and Engineering Divisions; but it is expected that, as from next year, the position will materially improve as a result of the policy of granting overseas study-leave to local officers to enable them to qualify for promotion to existing vacancies for professional officers. This, coupled with the grant of Government Scholarships to the Agricultural College, should within a comparatively short period restore the scientific and technical establishment of the Department which has been dangerously below strength during recent years.

B. Legislation

The following ordinances, Proclamations and Government Notices were issued during the year:—

Ordinance No. 6 of 1956	To amend the Tobacco Production and Marketing Ordinance.
Ordinance No. 9 of 1956	To amend the Sack Factory Ordinance 1951.
Ordinance No. 20 of 1956	To amend the Tea Industry Control Ordinance 1949.
Proclamation No. 1 of 1956	To proclaim the rate of the duty leviable under the Central Board (Costs of Administration) Ordinance 1951, on the sugars of the 1955 crop exported from the Colony.
Proclamation No. 5 of 1956	To specify the varieties of sugarcane which may be planted and propagated in the Colony and to fix the time within which other varieties of sugarcane growing in the Colony shall be uprooted.
Proclamation No. 6 of 1956	To restrict the importation of Citrus.
Proclamation No. 9 of 1956	To fix the day of the coming into force of the Tea Industry Control (Amendment) Ordinance 1956.

Proclamation No. 14 of 1956	To prohibit the exportation of maize to any of the Dependencies of Mauritius except Rodrigues and Agalega.
Government Notice No. 6 of 1956 ...	Regulations made under Section 33 of the Tea Industry Control Ordinance 1949.
Government Notice No. 51 of 1956 ...	Regulations made under sections 12 and 28 of the Sale of Canes Control Ordinance.
Government Notice No. 69 of 1956 ...	Regulations made under the Tea Industry Control Ordinance 1949.
Government Notice No. 78 of 1956 ...	Regulations made under the Tea Industry Control Ordinance 1949.
Government Notice No. 104 of 1956 ...	Defence (Slaughter of Cattle) (Amendment No. 2) Order, 1956 made under Regulation 3 of the Defence (Food Control) Regulations, 1941.

C. Publications

The following papers were published during the year: —

Bennie, J. G. S.	"The Mauritius Creole Breed of Milch Cattle." Emp. Jour. Expt. Agric., Vol. XXIV, No. 95, pp. 192–204, July 1956.
Bennie, J. G. S.	"Grazing Behaviour Tests with Mauritius Creole Cows." Emp. Jour. Expt. Agric., Vol. XXIV, No. 96, pp. 312–316, Oct. 1956.
Lucie-Smith, M. N.	"Biuret—A possible toxic impurity in urea used as a fertilizer or cattle-feed component." Revue Agric. et Sucr., Vol. 35, No. 5, pp. 261–263, Sept.–Oct., 1956.
Moutia, L. A.	"Contribution to the study of some Phytophagous Acarina and of their predators in Mauritius" Paper accepted for publication in the Bulletin of Entomological Research).
Williams, J. R.	"Varietal susceptibility in sugarcane to thrips *Fulmekiola serrata* Kob." Int. Soc. of Sugarcane Tech. 9th Congress, India. Jan. 1956.
Williams, J. R.	"A new genus and species of Drynidae (Hymenoptera) from Mauritius." Proc. R. Ent. Soc. London, Vol. 25, part 5 and 6, pp. 90–92, 1956.

D. Richelieu Maize Mill and Yeast Factory

RICHELIEU MAIZE MILL

Manufacturing account of the Yeast Factory for the year ending 30th June 1956

	Rs c		Rs c
To cost of Powder ...	9,789.16	By cost of production transferred to Trading account	34,604.51
To wages and cola ...	20,873.74		
To electricity	3,941.61		
TOTAL	34,604.51	TOTAL	34,604.51

Trading account as at 30th June 1956

	Rs c		s c
To cost of production from Manufacturing account	34,604.51	By sales to the public ...	1,293.50
To stock of Tablets on 1st July 1955	9,893.00	By sales to Government Departments	63,425.00
To gross profit transferred to P and L account ...	34,472.49	By stock of Tablets on 30th June 1956 ...	14,251.50
TOTAL	78,970.00	TOTAL	78,970.00

Profit and Loss account as at 30th June 1956

	Rs c		Rs c
To transport	214.99	By gross profit from Trading account	34,472.49
To aggregate	340.00		
To timber and planks ...	3,077.94		
To Stores	11,747.00		
To Crown Agents ...	3,081.88		
To salaries of Staff Rs 2,399.00			
To net profit Rs 13,611.68			
	16,010.68		
TOTAL	34,472.49	TOTAL	34,472.49

Manufacturing account of Animal Feeding Stuff Department for the year ending 30th June 1956

	Rs cs		Rs cs
To stock of Commodities on 1.7.55	239,003 55	By stock of Commodities on 30.6.56	103,752 25
To purchases	232,869 52	By cost of production transferred to Trading account	401,711 64
To wages and cola	23,066 87		
To electricity (current)	3,634 95		
To aloe bags	6,626. 25		
To aloe thread	262 75		
	505,463 89		505,463 89

Trading account as at 30th June 1956

	Rs cs		Rs cs
To cost of production from Manufacturing account ...	401,711 64	By sales	445,025 18
To gross profit transferred to P and L account	43,313 54		
	445,025 18		445,025 18

Profit and Loss account as at 30th June 1956

	Rs cs		Rs cs
To insurance	574 66	By gross profit from Trading account	43,313 54
To motor spirit	1,186 64	By transport by Lorry	4,532 25
To repairs to lorry	2,553 90	By refund on Aureofac ...	43 67
To electricity (rewiring and lighting)	5,592 01	By refund on motor spirit ...	162 24
To travelling	528 29		
To repairs to Mill	450 30		
To railway	40 91		
To rent	630 00		
To square timber	35 20		
To petty supplies	246 93		
To stores	10,267 00		
To depreciation :—			
Lorry (1/5 of 5,700.80) ...	1,140 16		
Cubing and Pelleting Machine (5% of 66,833.78) ...	3,341 69		
To salaries of staff 14,393.00			
To net profit c/f 7,071.01			
	21,464 01		
	48,051 70		48,051 70

Balance Sheet of Animal Feeding Stuff Department as at 30th June 1956

Liabilities	Rs c		Assets		Rs c
Accumulated profits ... 127,002 22			Stock of Commodities		103,752 25
Less loss 54–55 ... 13,838 48			Alœ thread		774 14
	113,163 74		Debtors		3,412 60
Accountant General (advance) ...	53,057 61		Stores...		5,065 31
Creditors	3,672 00		Molastes tank ...		800 00
Salaries of staff ... 14,393 00			Safe		250 00
Nett profit c/f ... 7,071 01			Lorry	5,700 80	
	21,464 01		*less* depreciation ...	1,140 16	4,560 64
			Cubing & Pelleting machine	66,833 78	
			less depreciation ...	3,341 69	63,492 09
			Spectrophotometer ...		9,250 33
Total ...	191,357 36		Total ...		191,357 36

Statement of Animal Feeding Stuff processed during the year ended 30th June 1956

	Kilos	In Kilos	Out Kilos
RECEIVING DEPARTMENT :—			
Stock on 1.7.55			
Poonac	149,870		
Molasses	63,156		
Bagacillo	69,400		
Urea	9,112		
Fish Meal	13,270		
Colonial Salt	550		
Baled Bagasse	85,185		
Yeast Powder	700		
Wheat Bran	108,860		
Lucerne	350		
Bone Meal	5,070		
Cod Liver Oil	1,171		
		506,694	
PURCHASES :—			
Molasses	273,690		
Flour Sweeping	11,740		
Lucerne	33,025		
Oats	13,720		
Dried Milk	3,065½		
Fish Meal	40,795		
Wheat Bran	100,080		
Broad Beans	1,531		
Colonial Salt	1,500		
Bagacillo	58,650		
Meat Meal	19,696		
Bone Meal	5,000		
Cod Liver Oil	2,455		
		564,947½	
TO MIXING DEPARTMENT :—			
Yeast Powder	700		
Molasses	229,505		
Fish Meal	42,715		
Colonial Salt	1,825		
Urea	3,973		
Bagacillo	29,470		
Baled Bagasse	42,961		
Wheat Bran	194,295		
Lucerne	22,805		
Bone Meal	4,520		
Cod Liver Oil	2,525		
Oats	8,920		
Dried Milk	1,025		
Flour Sweeping	3,430		
Broad Beans	1,500		
Meat Meal	11,075		
			601,244
TO MILLING DEPARTMENT :—			
Poonac	112,960		112,960
Fish Meal	775		
Lucerne	125		
Bone Meal	1,075		
Urea	450		
Molasses	19,106		
			21,531
STACK LOSS :—			
Bagacillo	22,825		
Bone Meal	25		
Flour Sweeping	50		
Cod Liver Oil	1		
Molasses	7,000		
Broad Beans	31		
Dried Milk	½		
			29,932½
Carried over ...		1,071,641½	765,667½

	Kilos	In Kilos	Out Kilos
Brought forward ...		1,071,641½	765,667½
BALANCE OF STOCK ON 30.6.56 :—			
Poonac	36,910		
Molasses	81,235		
Fish Meal	10,575		
Salt	225		
Urea	4,689		
Bagacillo	75,755		
Baled Bagasse	42,224		
Lucerne	10,445		
Wheat Bran	14,645		
Bone Meal	4,450		
Cod Liver Oil	1,100		
Oats	4,800		
Dried Milk	2,040		
Meat Meal	8,621		
Flour Sweeping	8,260		305,974
TOTAL ...		1,071,641½	1,071,641½
MILLING DEPARTMENT :—			
From Receiving Department :—			
Poonac	112,960	112,960	
TO FLOUR STORE :—			
Poonac Flour	111,100		
Industrial Loss	1,860		112,960
		112,960	112,960
FLOUR STORE :—			
Stock on 1.7.55	2,481		
From Milling Department :—			
Poonac Flour	111,100	113,581	
TO MIXING DEPARTMENT :—			
Poonac Flour	94,343		94,343
SALES :—			
Poonac Flour	12,000		12,000
BALANCE OF STOCK ON 30.6.56 :—			
Poonac Flour	7,238		7,238
TOTAL ...		113,581	113,581
MIXING DEPARTMENT :—			
From Receiving Department :—			
Yeast Powder	700		
Molasses	229,505		
Fish Meal	42,715		
Salt Colonial	1,825		
Urea	3,973		
Bagacillo	29,470		
Baled Bagasse	42,961		
Wheat Bran	194,295		
Lucerne	22,805		
Bone Meal	4,520		
Cod Liver Oil	2,525		
Oats	8,920		
Dried Milk	1,025		
Flour Sweeping	3,430		
Broad Beans	1,500		
Meat Meal	11,075		
FROM FLOUR STORE :—		601,244	
Poonac	94,343	94,343	
FROM MAIZE DEPARTMENT :—			
Maize Rice	6,320		
Maize Flour	227,863	234,183	
FROM ANIMAL FEEDING STUFF DEPARTMENT :—			
Special Maize Mixture (remixed)	7,323	7,323	
To Animal Feeding Stuff Department			937,093
TOTAL ...		937,093	937,093

	Kilos		*In Kilos*	*Out Kilos*
ANIMAL FEEDING STUFF DEPARTMENT :—				
Stock on 1.7.55	4,883			
From Mixing Department ...	937,093	(nett)		
Empty Gunnies	18,533			
			960,509	
SALES :—				
Poultry Feed	404,770	(gross for nett)		
Special Maize Mixture ...	76,400	,,		
Cow Feed	174,950	,,		
Ureated Molasses (25 percent)	8,000	,,		
Ureated Molasses (50 percent)	20,744	,,		
Ureated Molasses (75 percent)	17,875	,,		
Ureated Molasses (100 per cent)	119,950	,,		
Special Cow Feed	52,000	,,		
Calf Feed	1,000	,,		
Chick Feed	50,055	,,		
Horse Feed	7,300	,,		
				933,044
SENT TO MIXING (REMIXED) :—				
Special Maize Mixture ...	7,323			
				7,323
STACK LOSS :—				
Special Maize Mixture ...	782			
Ureated Molasses (25 per cent)	317			
Ureated Molasses (50 per cent)	1,409			
Ureated Molasses (100 per cent)	213			
Poultry Feed	10			
Special Cow Feed	250			
				2,981
BALANCE OF STOCK ON 30.6.56 :—				
Richelieu Maize Mill				
Special Maize Mixture ...	2,170			
Poultry Feed	2,670			
Cow Feed	3,800			
Chick Feed	580			
Ureated Molasses (75 per cent)	802			
Ureated Molasses (100 per cent)	574			
Special Cow Feed	2,060			
Horse Feed	355			
Calf Feed	20			
				13,031
ROSE HILL EXTENSION SHOP :—				
Poultry Feed	3,530			
Chick Feed	500			
Cow Feed	100			
				4,130
TOTAL ...			960,509	960,509

STATEMENT OF MAIZE PROCESSED DURING THE YEAR ENDED 30.6.56

RECEIVING DEPARTMENT :—				
Stock on 1.7.55	nil			
Purchases	199,780		199,780	
To dry Maize Store				199,780
TOTAL ...			199,780	199,780
DRY MAIZE STORE :—				
Stock on 1.7.55	106,150			
From Receiving Department ...	199,780		305.930	
To Milling Department ...	280.576			
Stack loss	4,490			
Balance of Stock on 30.6.56 ...	20,864			305,930
TOTAL ...			305,930	305,930

	Kilos	*In Kilos*	*Out Kilos*
MILLING DEPARTMENT :—			
From dry maize store ...	280,576	280,576	
TO GROUND MAIZE STORE :—			
Rice	6,550		
Flour	269,341		
Industrial loss	4,685		
			280,576
TOTAL ...		280,576	280,576
GROUND MAIZE STORE :—		*Rice*	*Flour*
Store on 1.7.55		6,635	13,152
From Milling Department ...		6,550	269,341
TOTAL ...		13,185	282,493
To Mixing Department			
(Animal Feeding Stuff) ...		6,320	227,863
Sales		6,300	46,020
BALANCE OF STOCK ON 30.6.56 :—			
Richelieu Maize Mill		415	8,610
Rose Hill Extension Shop ...		150	
TOTAL ...		13,185	282,493

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E. Conversion Table

1 Arpent	1,043 acres
1 Gaulette	10·6 feet
1 Metric Ton	1,000 kilos
1 Long Ton	1,016 kilos
1 Kilo	1,000 grams
1 English pound	453·6 grams
1 Cwt	50·803 kilos
1 Cord	92·82 cubic feet
1 Gallon	4·546 litres
1 Rupee	1/6 d. sterling,